Arthritis and Indiana: Our State's Burden

Contents

Acknowledgments

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Highlights

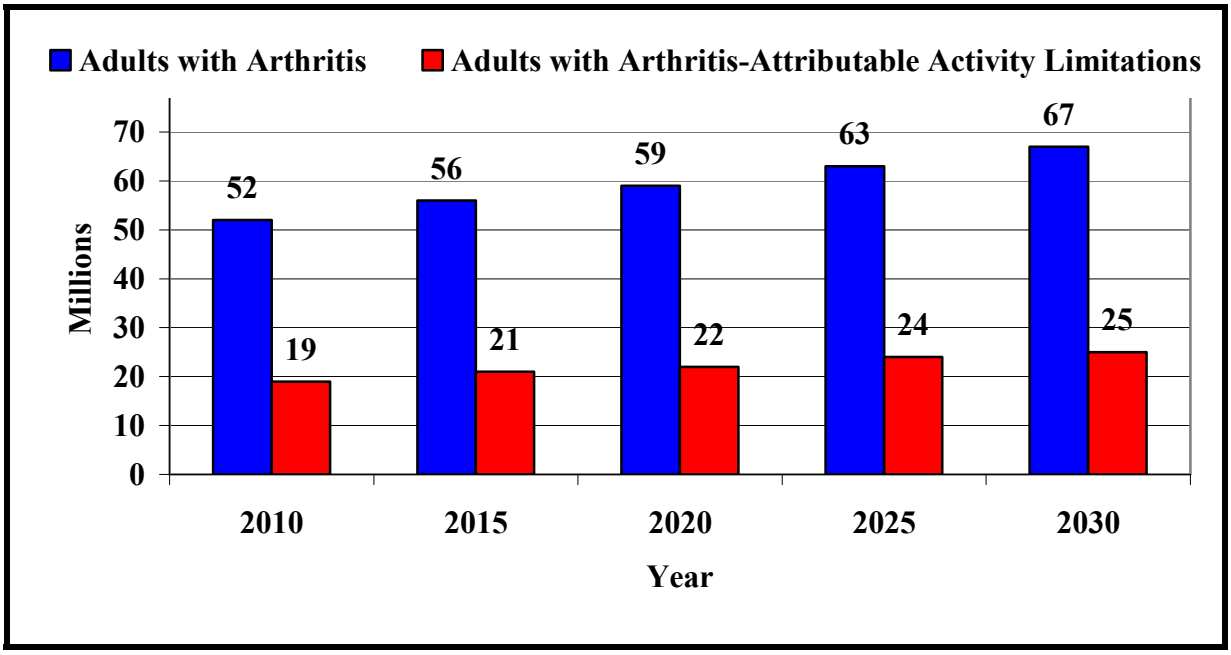
- Arthritis is the leading cause of disability among adults nationwide.
- Over 1.3 million residents, 29.1 percent of Hoosier adults, reported doctor-diagnosed arthritis in 2005.
- Almost 64 percent of those reporting doctor-diagnosed arthritis are working age (18-64 years old).
- Hoosier adults who were obese were more likely to have arthritis (38.6 percent) compared to those who were neither overweight nor obese (21.7 percent).
- Women were more likely to have doctor-diagnosed arthritis than men (32.4 vs. 25.9 percent).
- A greater percentage of low income Hoosiers had doctor-diagnosed arthritis than those with higher incomes (36.1 percent of people making less than $15,000 vs. 22 percent of those making $75,000 or more).
- People with doctor-diagnosed arthritis were 4 times more likely to report poor health (9.8 vs. 2.3 percent) and more days per month with limited activity (6.1 vs. 2.7).
- Hospitalization costs for Hoosiers with arthritis exceeded $610 million in 2005.
- Most arthritis care does not involve hospital admissions so the real cost of arthritis – from lost wages, doctor visits, medications, and rehabilitation – is much higher.
- Research shows that physical activity and losing excess body weight can improve the lives of people with arthritis and prevent some forms of the disease.

Arthritis Facts

As the leading cause of disability in the U.S.,[1] arthritis is highly prevalent among adults and associated with substantial activity limitation, work disability, reduced quality of life, and high health-care costs.[2-4] An estimated 21.6 percent of the adult U.S. population (46.4 million) reported doctor-diagnosed arthritis in 2005. In addition, 17.4 million (8.3% of the adult U.S. population) have arthritis-attributable activity limitation.[5] As the population ages, the prevalence of arthritis (see figure 1) is expected to grow from the current 46.4 million Americans today to 67 million by 2030, an increase of 144%.[6]

Figure 1

Projection of U.S. Prevalence of Arthritis and Associated Activity Limitations[7]



Using Medical Expenditure Panel Survey (MEPS) data, the CDC analyzed national and state-specific direct costs (i.e., medical expenditures) and indirect costs (i.e., lost earnings) attributable to arthritis and other rheumatic conditions (AORC) in the United States during 2003. The CDC report describes the results of that analysis, which indicated that in 2003 the total cost of AORC in the United States was approximately $128 billion ($80.8 billion in direct and $47.0 billion in indirect costs), equivalent to 1.2% of the 2003 U.S. gross domestic product.[8]

[1] CDC. Prevalence of disabilities and associated health conditions among adults—United States, 1999. MMWR 2001; 50:120–5.

[2] CDC. Racial/ethnic differences in the prevalence and impact of doctor-diagnosed arthritis—United States, 2002. MMWR 2005; 54:119–23.

[3] Mili F, Helmick CG, Moriarty DG. Health related quality of life among adults reporting arthritis: analysis of data from the Behavioral Risk Factor Surveillance System, U.S., 1996–99. J Rheumatol 2003; 30:160–6.

[4] CDC. Targeting arthritis: reducing disability for 43 million Americans: at a glance 2006. Atlanta, GA: US Department of Health and Human Services, CDC; 2006. Available at www.cdc.gov/nccdphp/aag/aag_arthritis.htm.

[5] Hootman JM, Helmick CG. Projections of US prevalence of arthritis and associated activity limitations. Arthritis Rheum 2006; 54:226–9.

[6] CDC. Prevalence of Doctor-Diagnosed Arthritis and Arthritis-Attributable Activity Limitation — United States, 2003–2005. MMWR 2006; 55:1089-92.

[7] CDC, Projected Prevalence of Self-Reported Arthritis or Chronic Joint Symptoms Among Persons Aged >65 Years — United States, 2005–2030, MMWR 2003, 52: 489-491

[8] CDC. National and State Medical Expenditures and Lost Earnings Attributable to Arthritis and Other Rheumatic Conditions — United States, 2003. MMWR 2007; 56: 4-7.

Types of Arthritis

There are more than 100 related diseases and conditions collectively known as "arthritis." The most common forms include osteoarthritis, rheumatoid arthritis, juvenile rheumatoid arthritis, fibromyalgia, bursitis, lupus, and gout. Though their causes may vary, these diseases often occur in or around one or more joints. Sometimes the problem is actually in the joint (as in osteoarthritis). Other times it is in the surrounding ligaments, tendons, or muscles (as in fibromyalgia). Some forms of arthritis are systemic and can affect the internal organs (as in rheumatoid arthritis).

Osteoarthritis (OA) is the most common form of arthritis, estimated to affect at least 21 million Americans.[9] OA is sometimes called "everyday" or "wear and tear" arthritis. A slippery material called cartilage covers the end of each bone and acts as a shock-absorbing cushion. In OA, cartilage starts to break down. Loss of that rubbery cushion in a joint--where bone meets bone--leads to symptoms of pain, stiffness, and swelling in the knee, hip, spine, feet, thumb, or fingers.

Current research contradicts accepted wisdom that OA "is a natural part of aging." There is evidence that obesity is a significant risk factor in the development and progression of OA. Even modest weight loss can reduce the risk of developing OA.[10] Once OA symptoms have begun, weight-bearing activities can help improve function. Physical activity and specific strengthening exercises strengthen the muscles around joints, stabilize them and enhance proprioception, the sense of joint position that the body uses to maintain balance. Moving joints through their full range of motion can reduce stiffness and pain. In addition, losing excess weight may retard the damage caused to weight-bearing joints (knees and hips) by obesity and may reduce symptoms.

Fibromyalgia affects muscles and is characterized by diffuse pain, fatigue, memory difficulties, disturbed sleep, and specific tender points. It occurs more often in women and is estimated to affect about two percent of the population. Exercise is a key component of fibromyalgia management. Aerobic exercise has been shown to improve muscle fitness, reduce pain, and improve sleep. Low impact activities, like walking, bicycling, or swimming, are recommended. Even for people who have been completely inactive and can only exercise a few minutes initially, the goal is to work slowly towards aerobic fitness. Other treatments include medications to reduce pain and improve sleep, stretches to improve muscle tone, relaxation techniques, and pain management strategies.

Rheumatoid arthritis (RA) is estimated to affect 3 million people nation wide.[11] This disease occurs more often in women, and is frequently first diagnosed during a woman's childbearing years. RA is a systemic, autoimmune disease, the cause of which is unclear. It is characterized by inflammation of the fluid lining the joints called synovium. The inflammation causes pain, stiffness, fatigue, redness, swelling, and warmth in the area around the joint. Over time, the inflamed joint lining can damage or deform the joint.

A relatively new class of medications called disease-modifying drugs can stop or slow joint damage, and biologic response modifiers can block the inflammatory processes and reduce pain. These medications have greatly improved the quality of life for people with RA and make **early diagnosis** and treatment more critical than ever.

New research gives hope that early diagnosis, proper medical treatment, and self-management strategies can help optimize function, reduce pain, and improve quality of life for people with arthritis. Individuals should consult with a health care provider for advice appropriate to their medical needs.

[9] American College of Rheumatology Web site: http://www.rheumatology.org/patients/factsheet/oa.html.

[10] Dixon JB and O'Brien PE. Quality of life after lap-band placement: influence of time, weight loss and comorbidities. Obes Res 2001; 9: 713-21.

[11] Klippel JH, Crofford LJ, Stone JH, Weyand CM, editors. "Rheumatoid arthritis: Epidemiology, pathology, and pathogenesis," In Primer on the Rheumatic Diseases, 12th Edition. Atlanta, GA: Arthritis Foundation, 2001, p. 289.

Arthritis in Indiana

The Indiana Arthritis Initiative

In 1998, the Centers for Disease Control and Prevention, the Arthritis Foundation, and the Association of State and Territorial Health Officials jointly released the *National Arthritis Action Plan: A Public Health Strategy* (NAAP), which outlined a national charter for addressing arthritis. In 2000, the CDC began funding states to develop arthritis programs. CDC-funded programs emphasized improving life for people with arthritis by encouraging early diagnosis, proper treatment, and self-management strategies to optimize functional status. (For more information about the CDC program, see http://www.cdc.gov/arthritis/.

The Indiana State Department of Health (ISDH) received funding in 2001, and the Indiana Arthritis Initiative (IAI) began work. IAI is facilitated by the ISDH Chronic Disease Division; a steering committee directs the initiative's efforts (see Appendix A for steering committee member list). Since their inaugural meeting in November 2002, the IAI steering committee has authored the Indiana Arthritis Strategic Action Plan, initiated exercise and self-management programs across the state, developed an easy to read exercise booklet entitled *Movement is Medicine*, and implemented annual health communication campaigns that promote physical activity for people with arthritis.

IAI produced this burden report to aid planning, implementing, and evaluating efforts to improve the lives of state residents affected by arthritis. **The burden of arthritis includes functional limitations, reduced quality of life, work disability, lost wages, and associated medical costs.**

The Behavioral Risk Factor Surveillance System

The results in this report are based on Indiana's 2005 Behavioral Risk Factor Surveillance System (BRFSS) survey. The BRFSS is administered annually by all 50 states with funding from and in cooperation with the CDC. Developed to collect data on major behavioral risk factors contributing to premature death and disability, the BRFSS is a random digit-dial telephone survey of adults aged 18 years and older. Results are based on respondents' answers to BRFSS questions.[12]

Respondents were considered to have physician-diagnosed arthritis if they answered yes to the following question:

> "Have you ever been told by a doctor or other health professional that you have some form of arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia?"

[12] Indiana's sample size for 2005 was 5,635 randomly selected Indiana residents aged 18 years or older. The data are adjusted so that weighted sample data produces demographic distribution corresponding closely to the state's population. Indiana's CASRO (Council of American Survey Research Organizations) response rate in 2005 was 48.6 percent. States' response rate varied from 34.6 percent to 67.4 percent.

Who Has Arthritis in Indiana

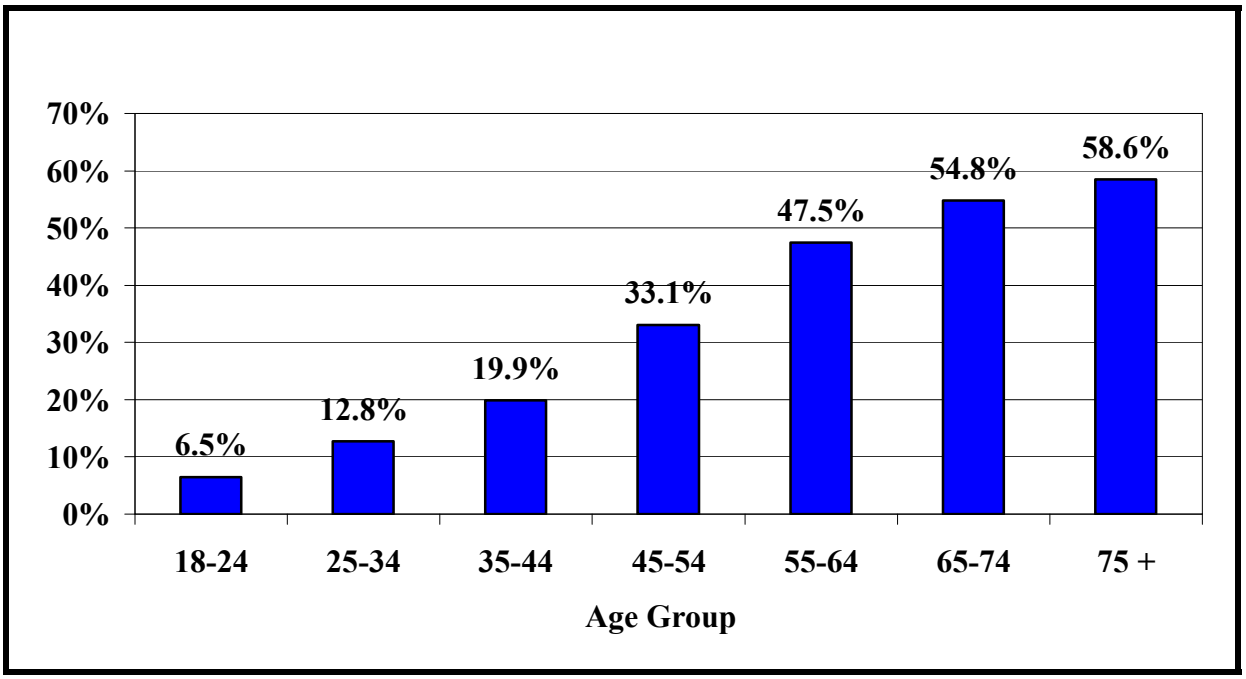
More than 29.1 percent of BRFSS respondents reported doctor-diagnosed arthritis, nearly 1.3 million Hoosiers adults. Respondents who were women, older, obese, had low incomes, or had less than high school education reported higher rates of arthritis.

Age

The likelihood of getting arthritis increased with age. Respondents aged 18-24 reported arthritis at 6.5 percent compared to 58.6 percent of respondents aged 75 or older (see Figure 2).

Figure 2

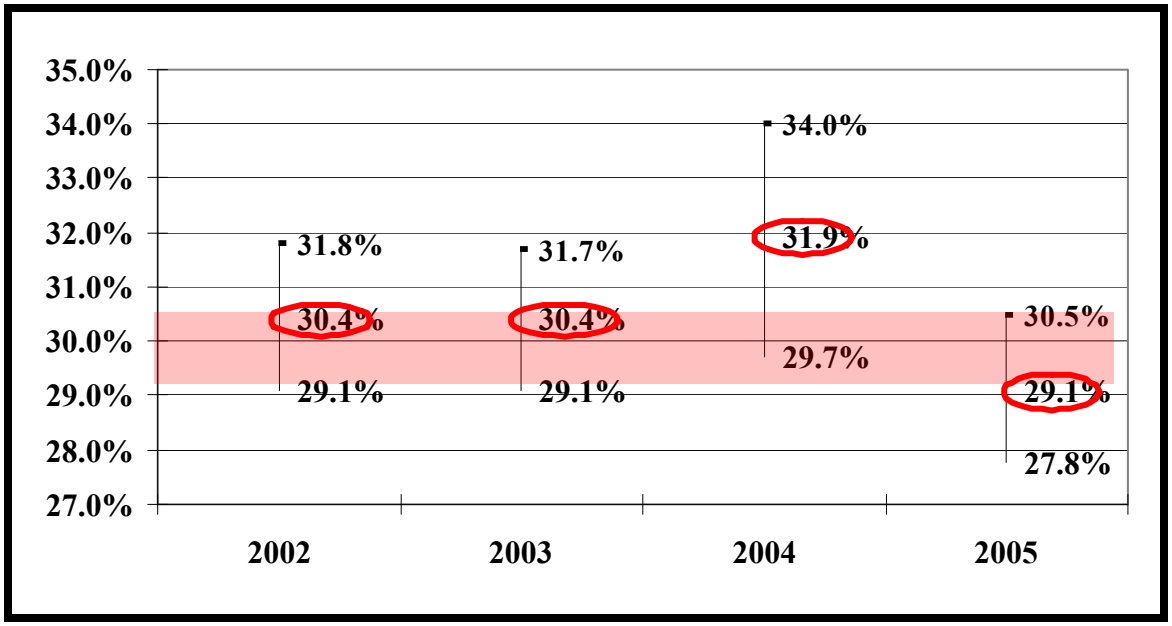
Diagnosed with Arthritis by Age (Indiana 2005 BRFSS)



Although the number of Hoosiers adults reporting doctor-diagnosed arthritis varied between 2002 through 2005, a common range between 29.7 and 30.5 percent occurred within the confidence intervals for all four years (see shaded area, Figure 3).

Figure 3

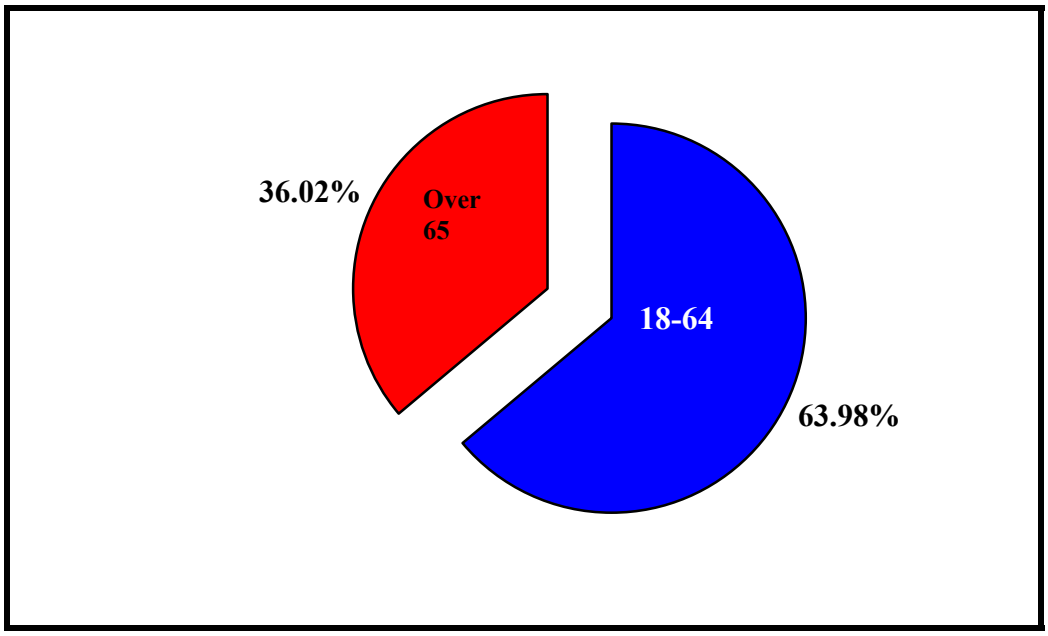
Diagnosed with Arthritis 2002-2005 (Indiana 2002 -2005)



It is a myth that arthritis "only affects old people." Most Hoosiers (64%) with arthritis are working age (see Figure 4).

Figure 4

Diagnosed with Arthritis by Working or Retirement Age (Indiana 2005 BRFSS)

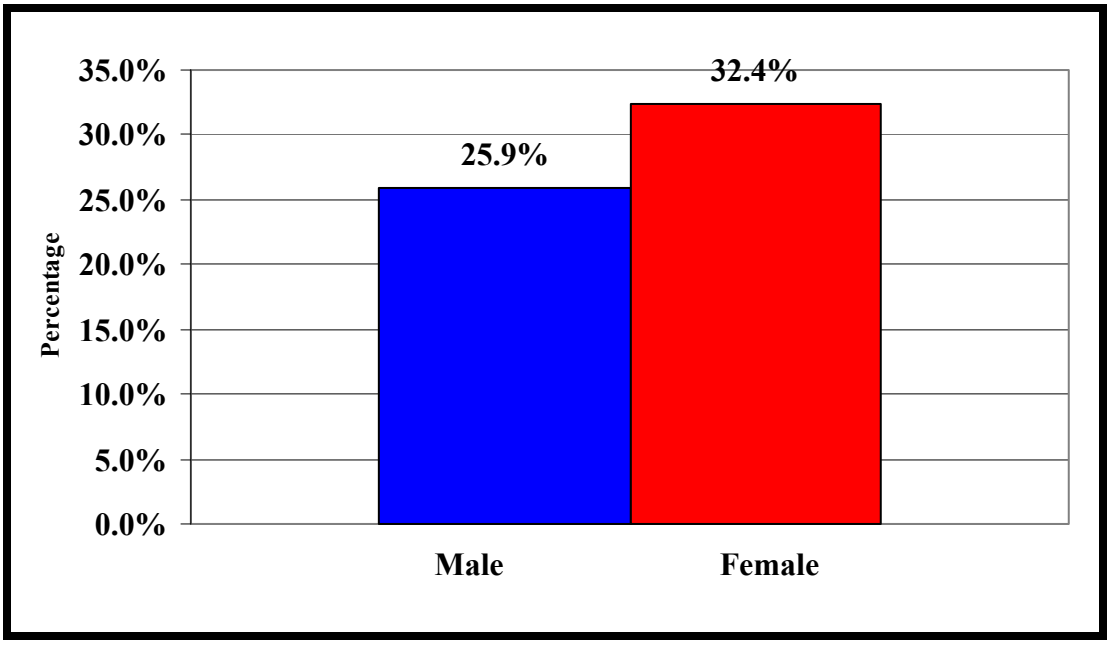


Sex

Overall, women were more likely to have arthritis than men were, 32.4 percent vs. 25.9 percent, respectively (see Figure 5).

Figure 5

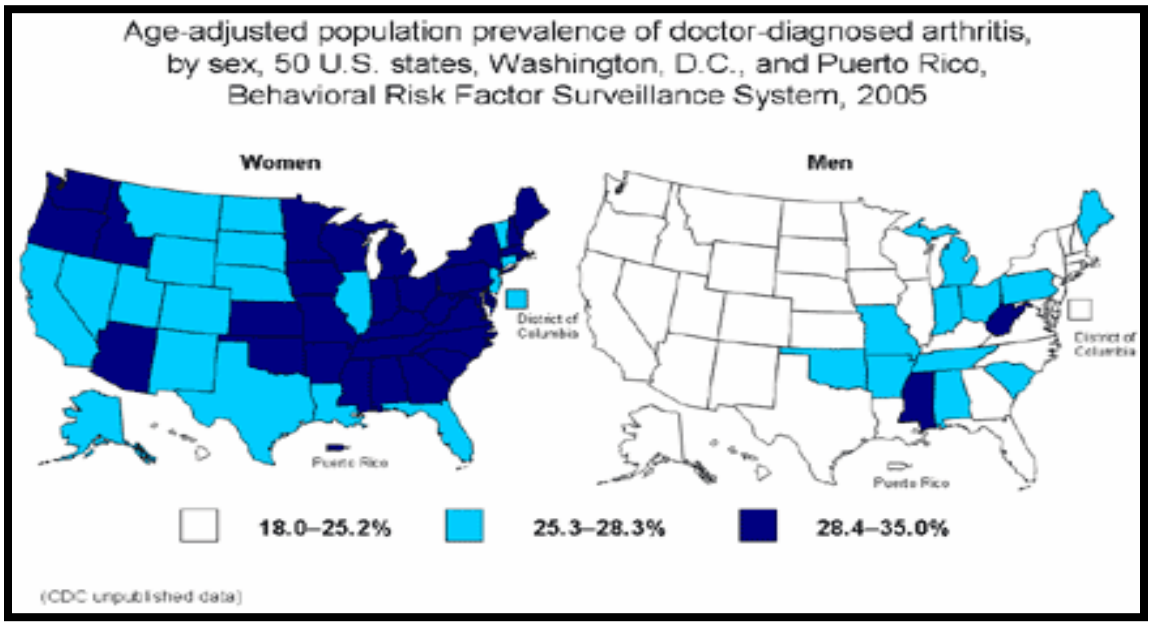
Diagnosed with Arthritis by Sex (Indiana 2005 BRFSS)



Nationally, females have a higher prevalence of arthritis than males. Indiana ranks high in both female and male prevalence.

Figure 6

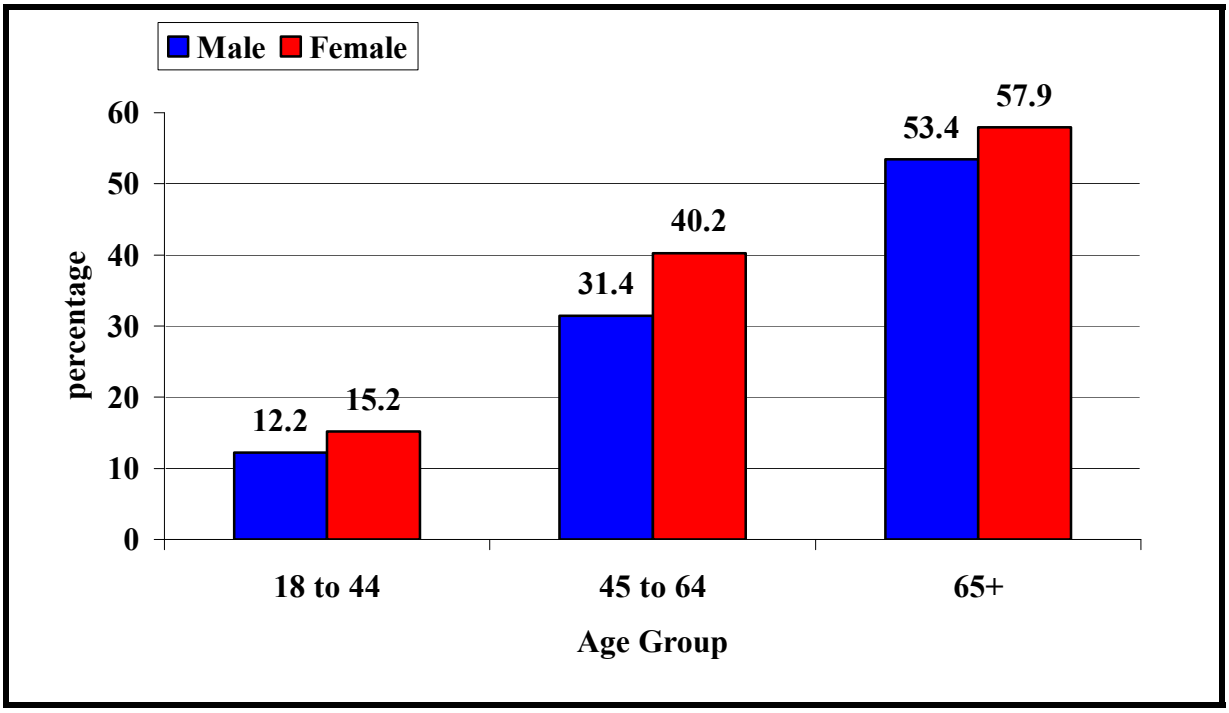
Diagnosed with Arthritis by Sex Nationally (2005 BRFSS)



Prevalence for the sexes was comparable for adults under 45 years of age -- 12.2 percent for males and 15.2 percent for females. After age 45, prevalence for females surpassed that of males by nearly nine percentage points. This trend lasts until after age 65, when males began to "catch up" with females (see Figure 7).

Figure 7

Diagnosed with Arthritis by Age and Sex (Indiana 2005 BRFSS)



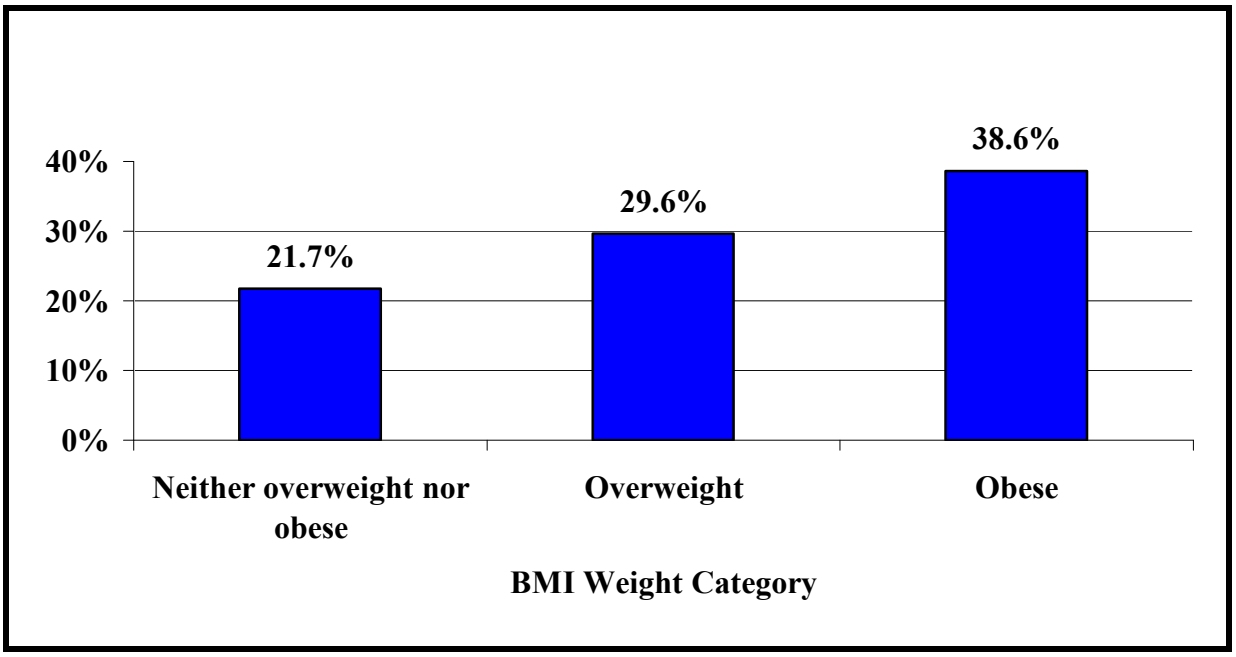
Body Weight

Indiana ranked as 10th most obese state in 2005, with 27.2 percent of Hoosier adults classified as obese, based on their reported height and weight.[13] (See appendix C for a Body Mass Index chart, for normal weight, overweight and obese classifications).

The excess weight Hoosiers carry increased stress on weight-bearing joints and created a greater risk for osteoarthritis. With respect to body weight, 38.6 percent of Hoosiers considered obese reported arthritis, compared to 21.7 percent of those who were considered normal weight or underweight (see Figure 8).

Figure 8

Diagnosed with Arthritis by Body Mass Index (BMI) (Indiana 2005 BRFSS)



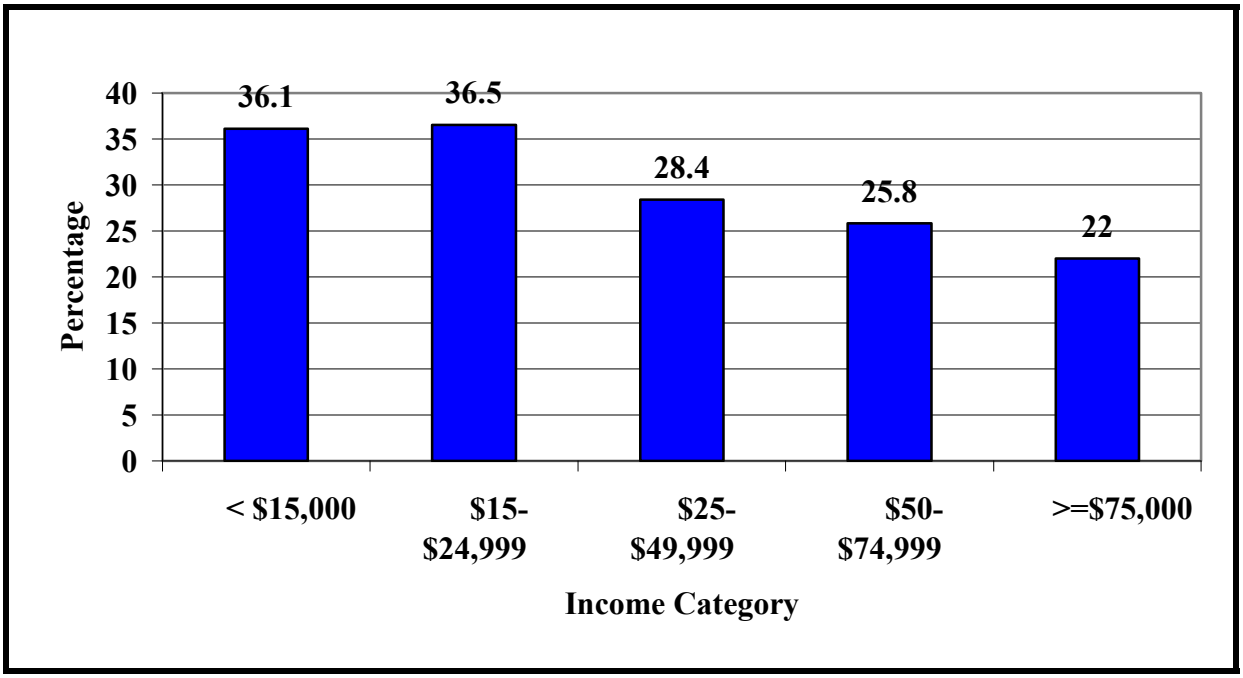
Socioeconomic factors

Income and education are "markers" of socioeconomic status. Research indicates that socioeconomic conditions may play a role in who gets arthritis, as they do for other chronic diseases.

With respect to income level, those households with an income below $25,000 reported higher rates of arthritis. Of households making less than $15,000, more than 36% reported physician-diagnosed arthritis, compared to 22 percent with income of $75,000 or more (see Figure 9).

Figure 9

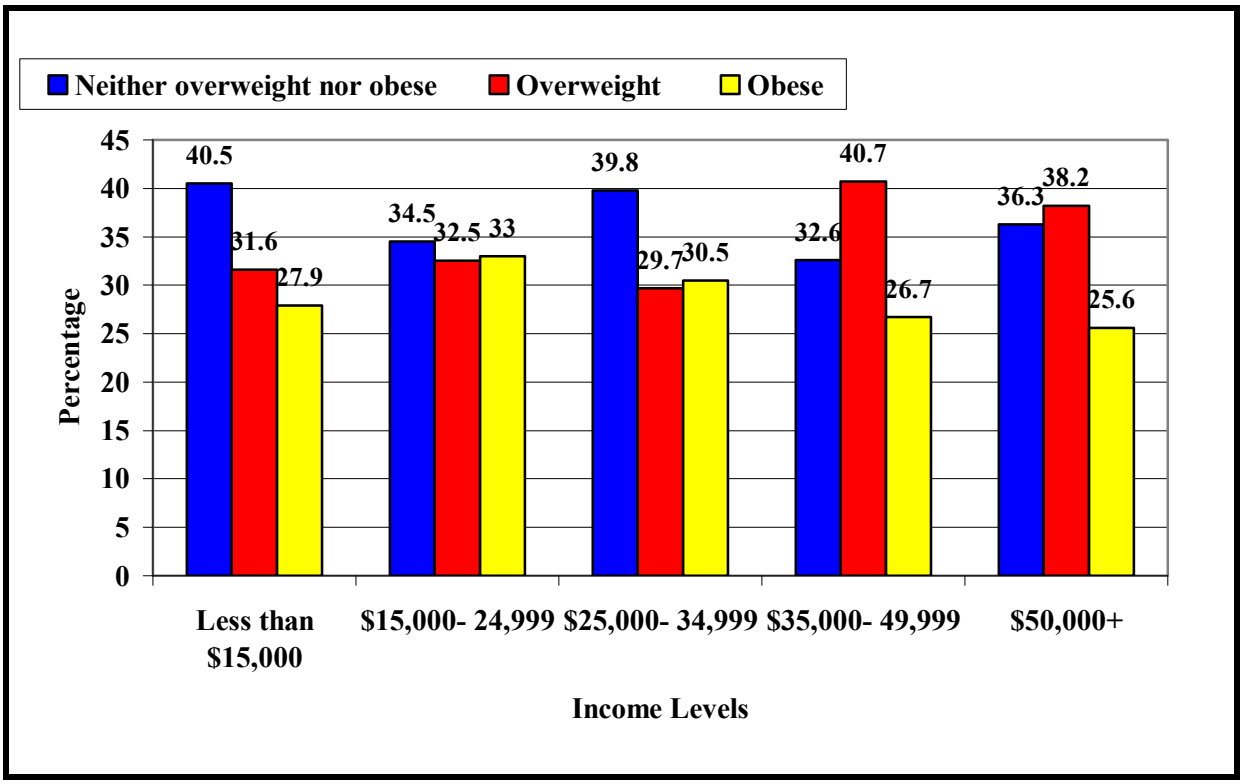
Arthritis Diagnosed by Income (Indiana BRFSS 2005)



Obesity rates were consistent across income levels indicating that obesity did not explain higher disease rates in low-income respondents. Of respondents whose annual income was less than $15,000, the obesity rate was 27.9 percent. Individuals with a yearly income of $50,000 or more had an obesity rate of 25.6 percent. (see Figure 10).

Figure 10

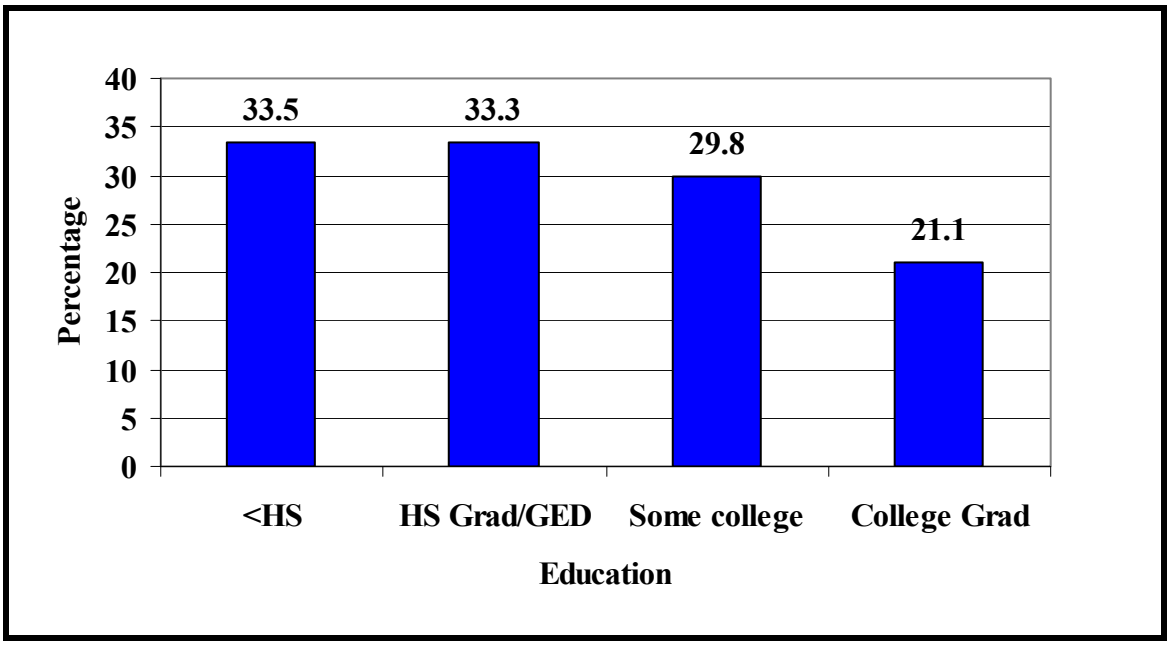
Prevalence of Obesity by Income Level (Indiana 2005 BRFSS)



By education, 33.5 percent of adults with less than high school education reported arthritis versus 21.1 percent of adults with college degrees (see Figure 11).

Figure 11

Diagnosed with Arthritis by Education (Indiana 2005 BRFSS)

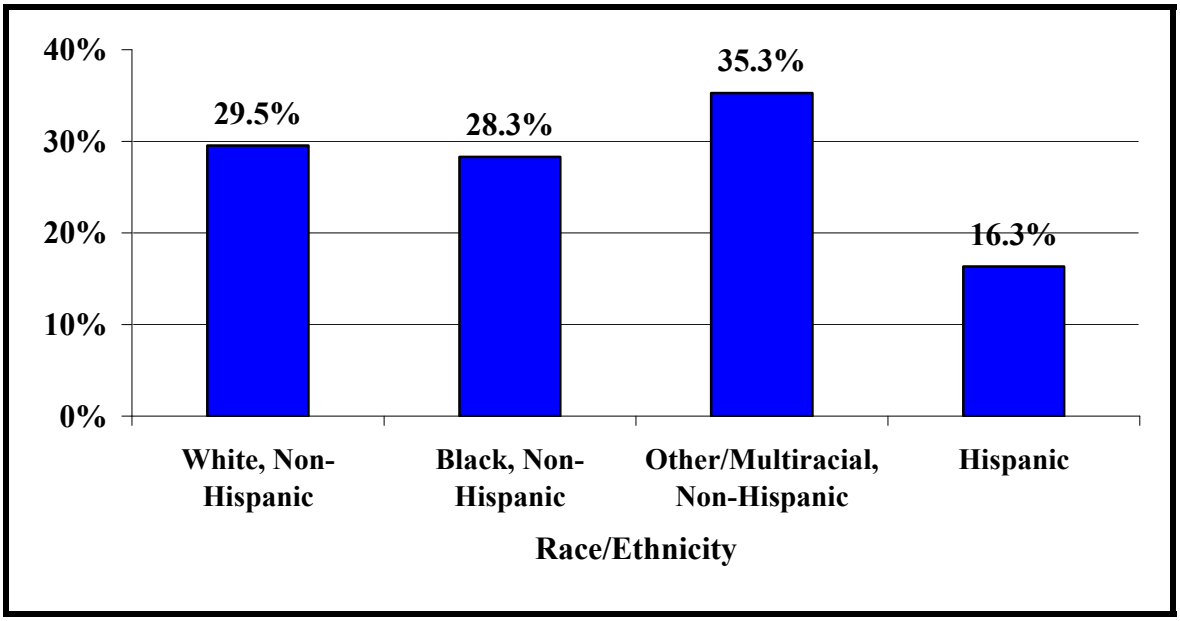


Race/ethnicity

Whites (non-Hispanic/Latino), Blacks (non-Hispanic/Latino) and people of multiple races report similar rates for arthritis, 29.5 percent, 28.3 percent, and 35.3 percent, respectively. Hispanics/Latinos reported a somewhat lower rate of 16.3 percent. Younger age among the Hispanic/Latino population in Indiana may account for the lower rate (see Figure 12).

Figure 12

Diagnosed with Arthritis by Race and Ethnicity (Indiana BRFSS 2005)



Rural/urban

Counties in the state are divided into five categories based on their population:

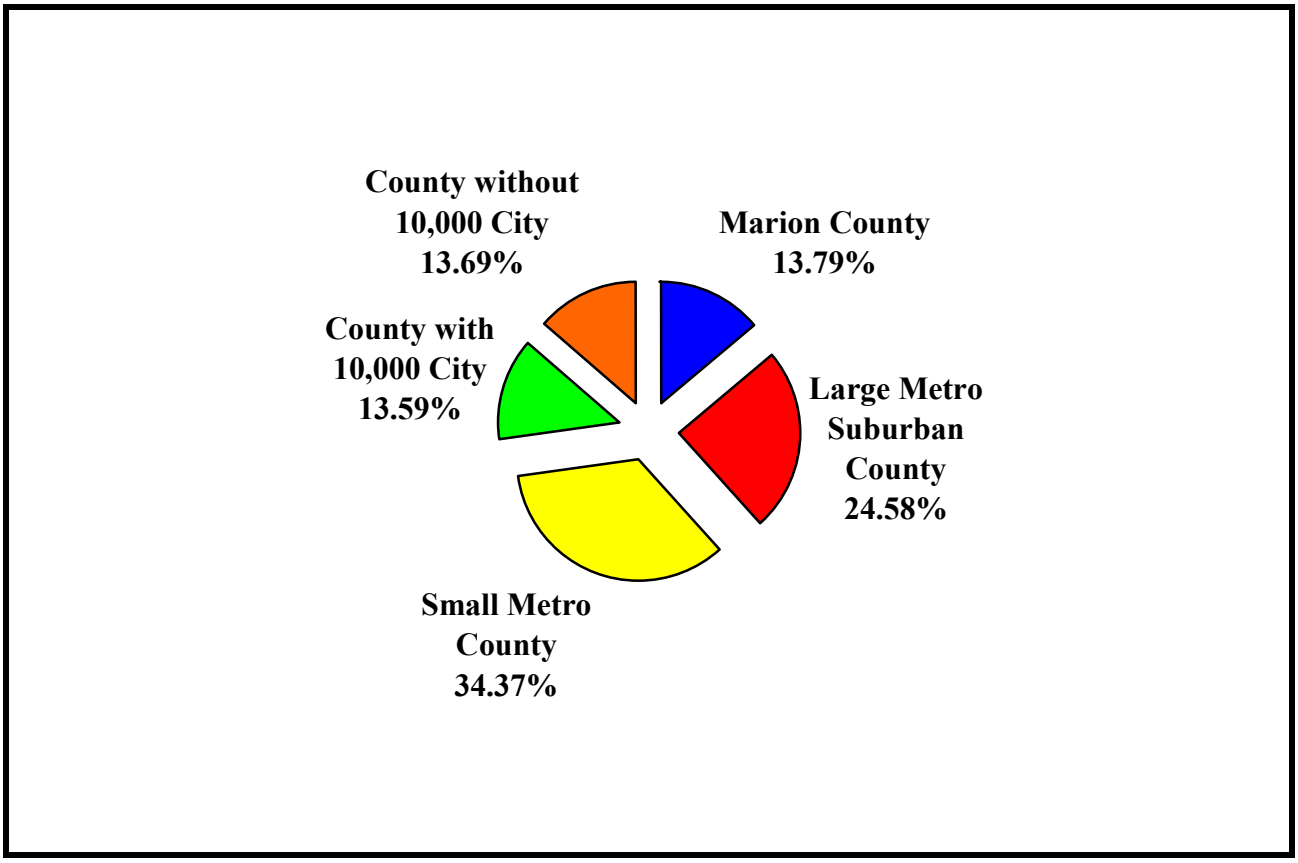
- Indianapolis or Marion County
- Counties on the fringe of a large metropolitan (e.g., Porter in the northwest and the "doughnut" counties surrounding Marion)
- Counties with small metropolitans (e.g., Allen, Monroe, St. Joseph, and Vanderburgh)
- Non-metropolitan counties with a city of 10,000 population (e.g., Bartholomew, Daviess, Fayette, and Wabash)
- Non-metropolitan counties without a city of 10,000 population (e.g., Benton, Carroll, Putnam, and Washington)

The prevalence rates for arthritis are similar across population categories. However, 34.4 percent of state residents live in counties with small metropolitans, while 24.6 percent live in counties on the fringe of large metropolitans, 13.8 percent in Marion county, 13.6 percent in non-metropolitan counties with a city of more than 10,000, and 13.7 percent in non-metropolitan counties without a city of 10,000 (see Appendix B for state demographics). When deciding

where to target interventions, these demographics are an important factor to consider (see figure 13).

Figure 13

Population Percentage Based on County Type (US Census)



[13] ISDH 2005 Indiana Health Behavior Risk Factors Report.

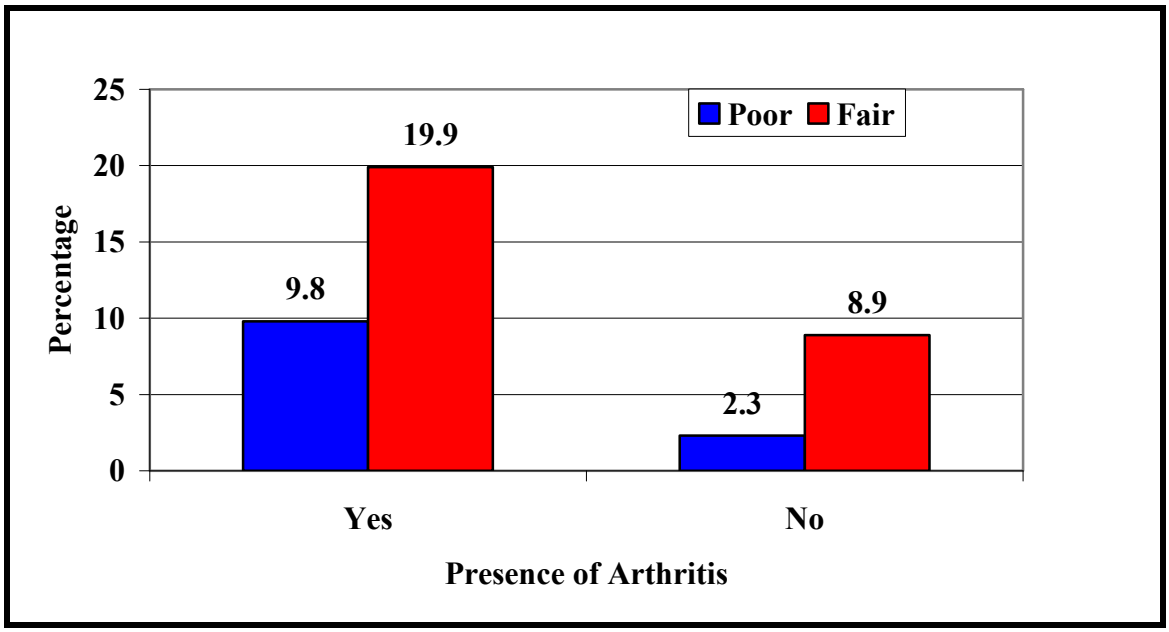
How Arthritis Affects Daily Life

Health status

Nearly 30 percent of respondents with arthritis either reported their health as poor (19.9 percent) or fair (9.8 percent). This is more than four times higher than those reporting poor health with no arthritis and twice as high as those who reported fair health with no arthritis (see Figure 14).

Figure 14

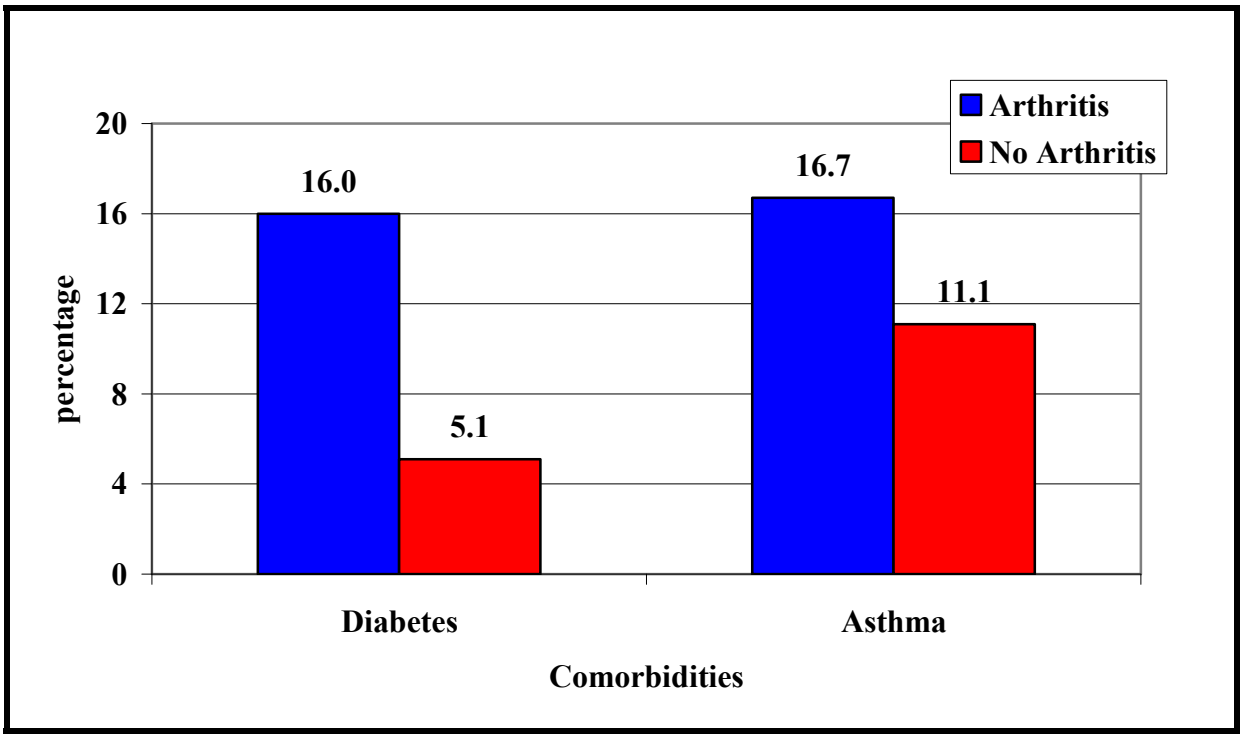
Fair and Poor General Health by Presence of Arthritis (Indiana 2005 BRFSS)



People with arthritis were more likely to have other chronic diseases, which may have contributed to their self-rated health status as fair or poor. Respondents with arthritis had a higher prevalence of diabetes, and asthma than those without arthritis (see Figure 15).

Figure 15

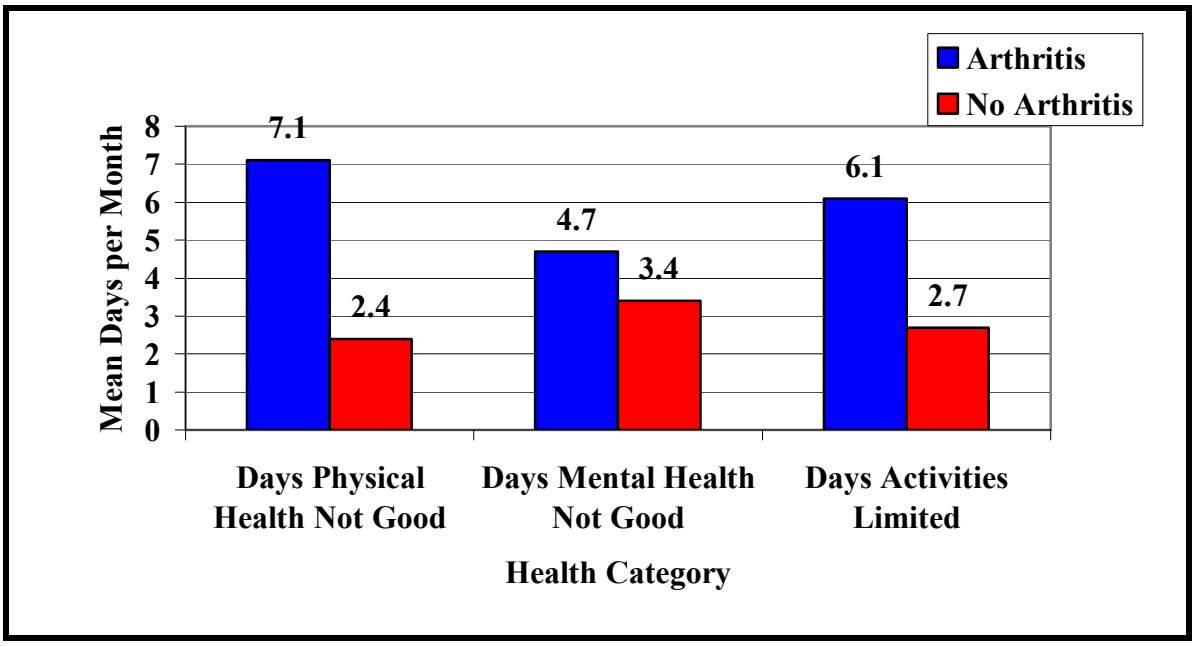
Diagnosed with Arthritis by Comorbidities (Indiana 2005 BRFSS)



People with arthritis were more likely to have days with poor physical health in the past month (7.1 days vs. 2.4 days for those without arthritis), poor mental health days (4.7 days vs. 3.4 days for those without arthritis), and days when their activities were limited (6.1 days vs. 2.7 days for those without arthritis) (See Figure 16).

Figure 16

Presence of Arthritis by Number of Days Health Not Good (Indiana 2005 BRFSS)

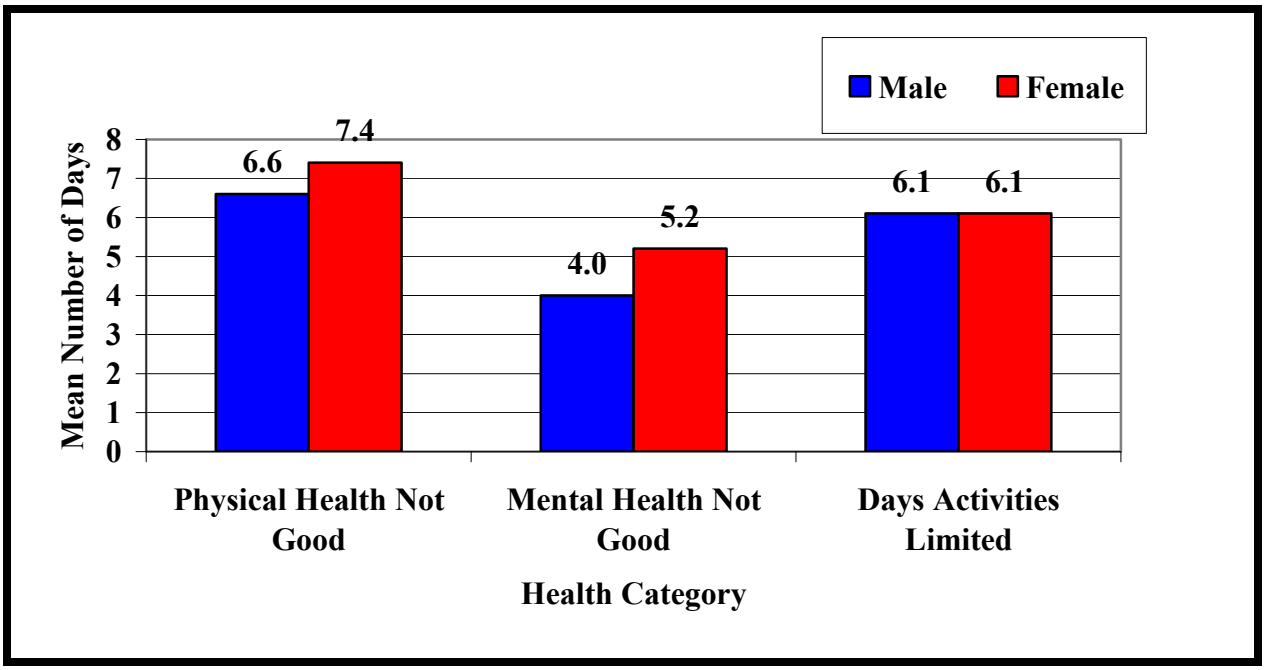


Among respondents with arthritis, women reported a higher mean number of poor physical health days than men (7.4 vs. 6.6) and a higher mean number of poor mental health days than men (5.2 vs. 4). However, both men and women reported the same number of days during the last month when their activities were limited (6.1) (see Figure 17).

Figure 17

Diagnosed with Arthritis by Number of Days Health Not Good by Gender

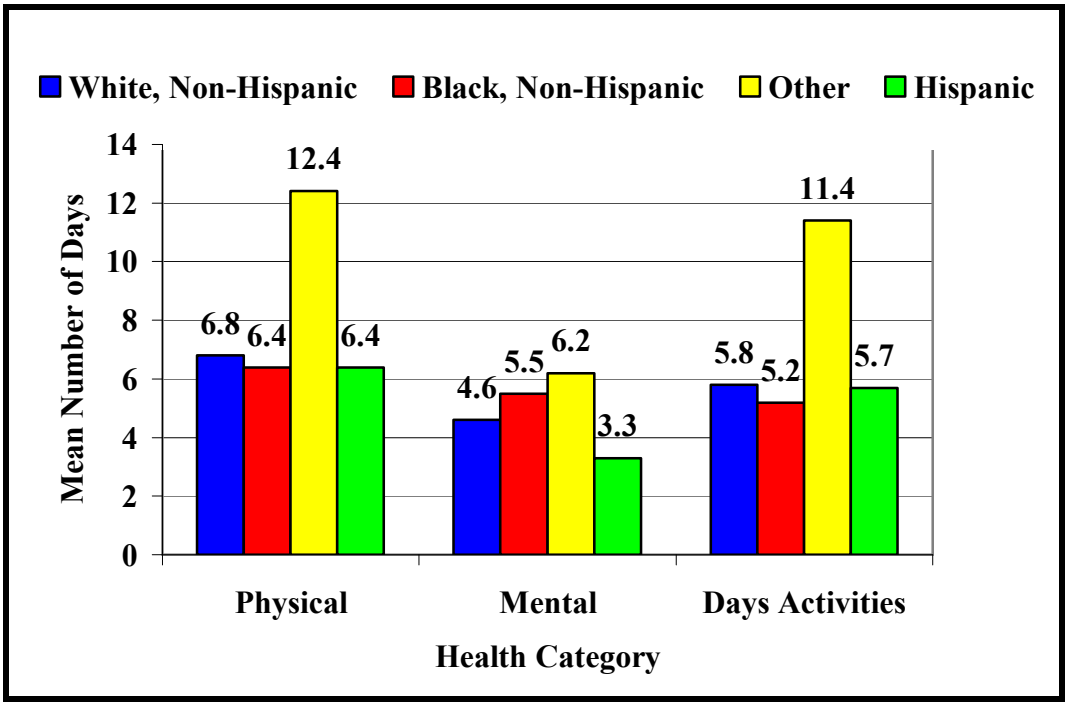
(Indiana 2005 BRFSS)



Those identifying their race as "Other" had the highest rate of poor physical health days at 12.4 days per month, nearly doubling that of Whites (6.8), Blacks (6.4) and Hispanics (6.4) days. Those identifying their race as "Other" had the highest number of poor mental health days (6.2), and the most days with limited activities at 11.8, nearly double the number of those of Whites (5.8), Blacks (5.2), and Hispanics (5.7) (see Figure 18).

Figure 18

Days Health Not Good by Race/Ethnicity (Indiana 2005 BRFSS)

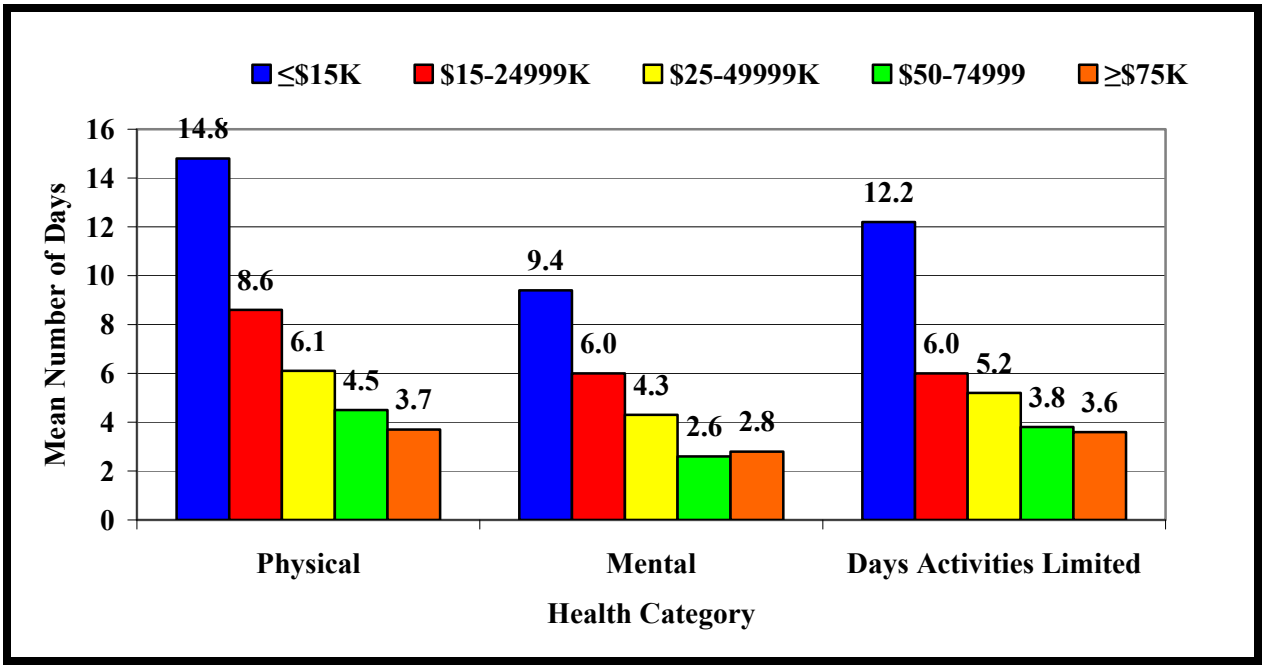


BRFSS data indicated that the presence of poor physical/mental health and limited activity days might have been dependent on household income rather than race. Respondents with annual incomes of less than $15,000 reported notably higher rates of poor physical health, mental health and number of limited activity days (See Figure 19).

Figure 19

Diagnosed with Arthritis by Number of Days Health Not Good by Income

(Indiana 2005 BRFSS)



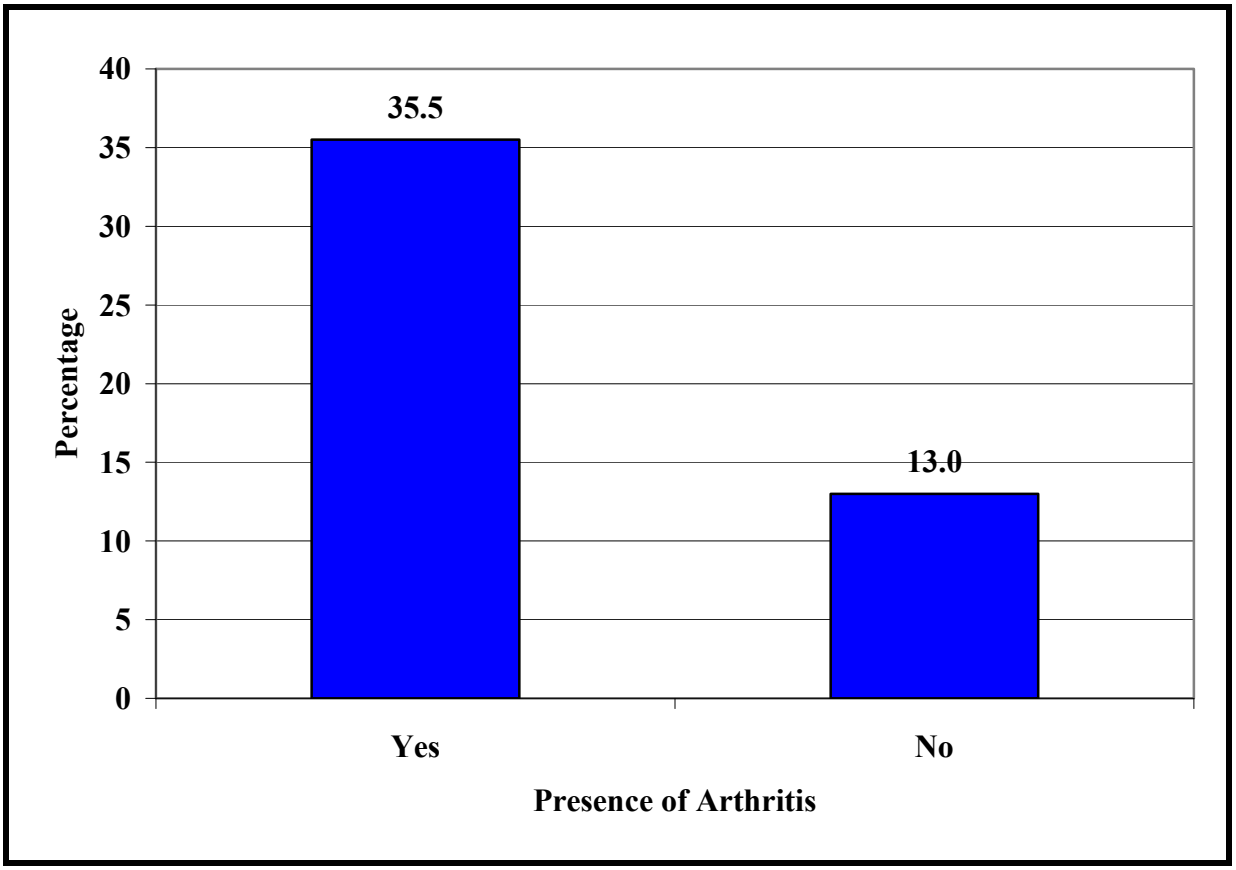
Activity levels and limitations

Having arthritis/joint symptoms relates to lower activity levels in several ways. More than 35 percent of Hoosiers with arthritis answered "yes" to the question "Are you now limited in any way in any of your usual activities because of arthritis?" compared to 13 percent of those without arthritis (see Figure 20).

Figure 20

Presence of Arthritis by Activity Limitation Due to Joint Symptoms

(Indiana BRFSS 2005)

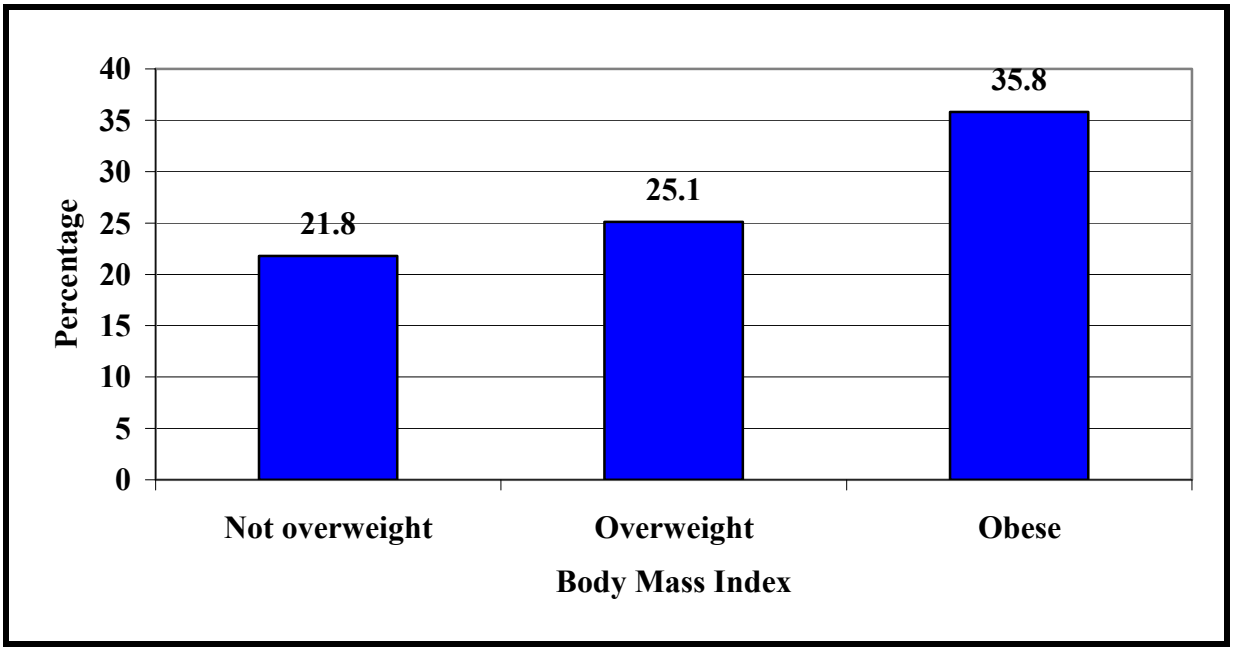


Obesity increased the likelihood that those with joint symptoms would suffer activity limitations. Individuals who were obese were more than 1.6 times more likely to report limitations from their arthritis than individuals who were not overweight, 35.8 percent and 21.8 percent, respectively (see Figure 21).

Figure 21

Presence of Activity Limitation Due to Joint Symptoms by BMI

(Indiana 2005 BRFSS)

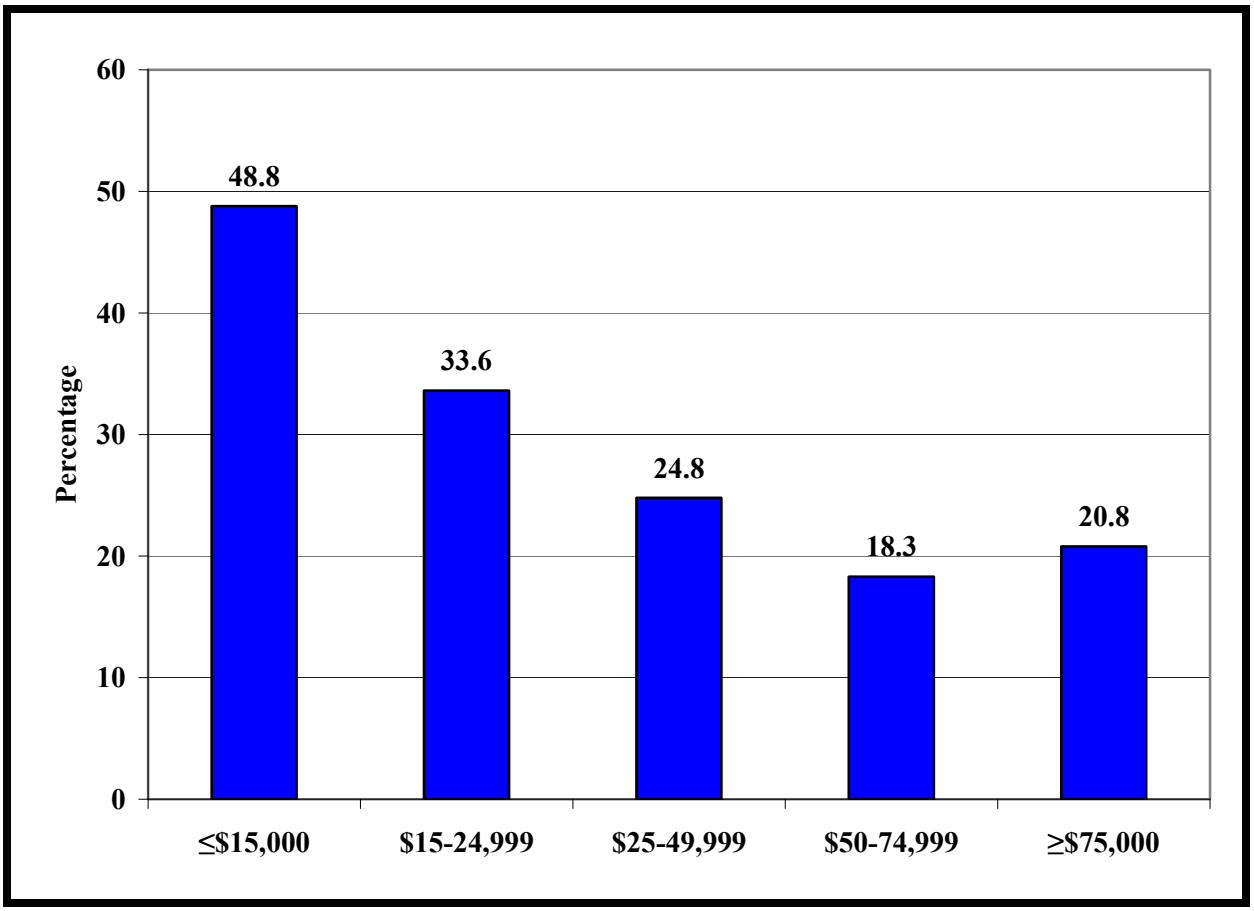


Lower income also corresponded to limitations from arthritis. Nearly half (48.8 percent) of those with income lower than $15,000 reported limitations, compared to 20.8 percent of those with incomes $75,000 or more (see Figure 22).

Figure 22

Limited in Usual Activities Due to Joint Symptoms by Income Level

(Indiana 2005 BRFSS)



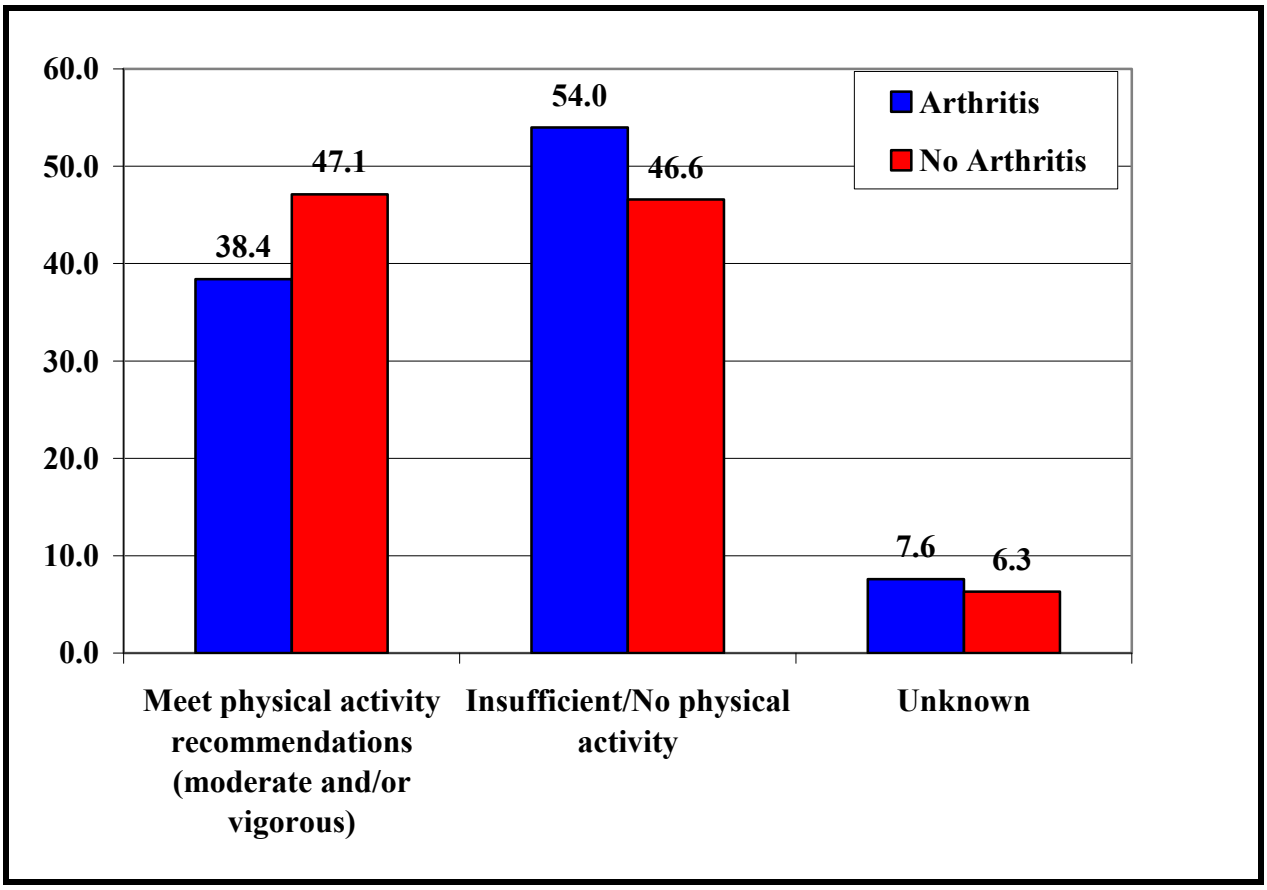
BRFSS data indicated that 38.4% of adults with arthritis met CDC's recommendation for physical activity, compared to 47.1% of those without arthritis.[14] Fifty-four percent of people with arthritis report insufficient or no physical activity (see Figure 22).

[14] "Vigorous" activity causes large increases in breathing and heart rate; examples are running, aerobics, or heavy yard work. "Moderate" activity causes small increases in breathing and heart rate; examples are brisk walking, bicycling, vacuuming and gardening. For BRFSS purposes, the activity must have been conducted for at least a 10-minute period.

Figure 23

Comparison of Physical Activity between Arthritis and No Arthritis

(Indiana 2005 BRFSS)



What Arthritis Costs Indiana

In 2005, Indiana residents had 21,063 hospitalizations with a primary discharge diagnosis of arthritis. Hospital charges were more than $610 million. The majority of the hospitalizations (78 percent) were due to osteoarthritis.[15] The average charge for arthritis procedures has increased almost 13 percent between 2004 ($25,651) and 2005 ($29,001). As the state's population continues to age, the cost of arthritis will increase. Charges for treatment of osteoarthritis (knee and hip replacement) were five times more than all other diagnoses combined.

Table 1

Total Charges for Indiana Arthritis Inpatients by Type of Arthritis, 2005

ARTHRITIS DIAGNOSIS	Number of Discharges	Hospital Charges	Average Charge
Osteoarthritis	16,444	$510,331,306	$31,034.50
Spondylosis/spondylitis and allied disorders	1,350	$44,483,599	$32,950.81
Soft tissue disorders (excluding back)	1,374	$23,851,115	$17,358.89
Joint pain, effusion, & other unspecified joint disorder	769	$11,752,764	$15,283.18
Rheumatoid arthritis	395	$8,265,212	$20,924.59
Diffuse connective tissue disease	267	$7,670,617	$28,728.90
Gout & other crystal arthropathies	321	$3,089,480	$9,624.55
Myalgia/myositis unspecified	120	$1,202,425	$10,020.21
Carpal tunnel syndrome[16]	23	$221,055	$9,611.09
All arthritis discharges	**21,063**	**$610,867,573**	**$29,001.93**

Since most people with arthritis do not require hospital care, hospitalization costs reflect only a part of the entire burden. Other costs include physician visits, emergency room visits, physical therapy, occupational therapy, nursing home care, mental health counseling, x-rays, laboratory tests, and prescription and over-the-counter medications. Assistive devices like canes, crutches, and walkers, and "alternative" therapies such as chiropractic, acupuncture, and glucosamine and chondroitin sulfate supplements also contribute to the cost of arthritis care.

Economists estimate that 52 percent of the nation's costs from musculoskeletal conditions are due to indirect costs resulting from wage losses of people with arthritis and their caregivers.[16] Intangible costs include pain, psychological suffering, and the stress placed on families.

[15] 2005 Hospital Discharge Data. Source: Indiana State Department of Health, Epidemiology Resource Center. ICD-9 codes used to compute arthritis data were those defined by the National Arthritis Data Workgroup (NADW), which is composed of researchers from CDC, AF, and the American College of Rheumatology (ACR). For a list of the ICD-9 codes, see CDC, Arthritis prevalence and activity limitations, *MMWR*, June 24, 1994, 43(24):433-438.

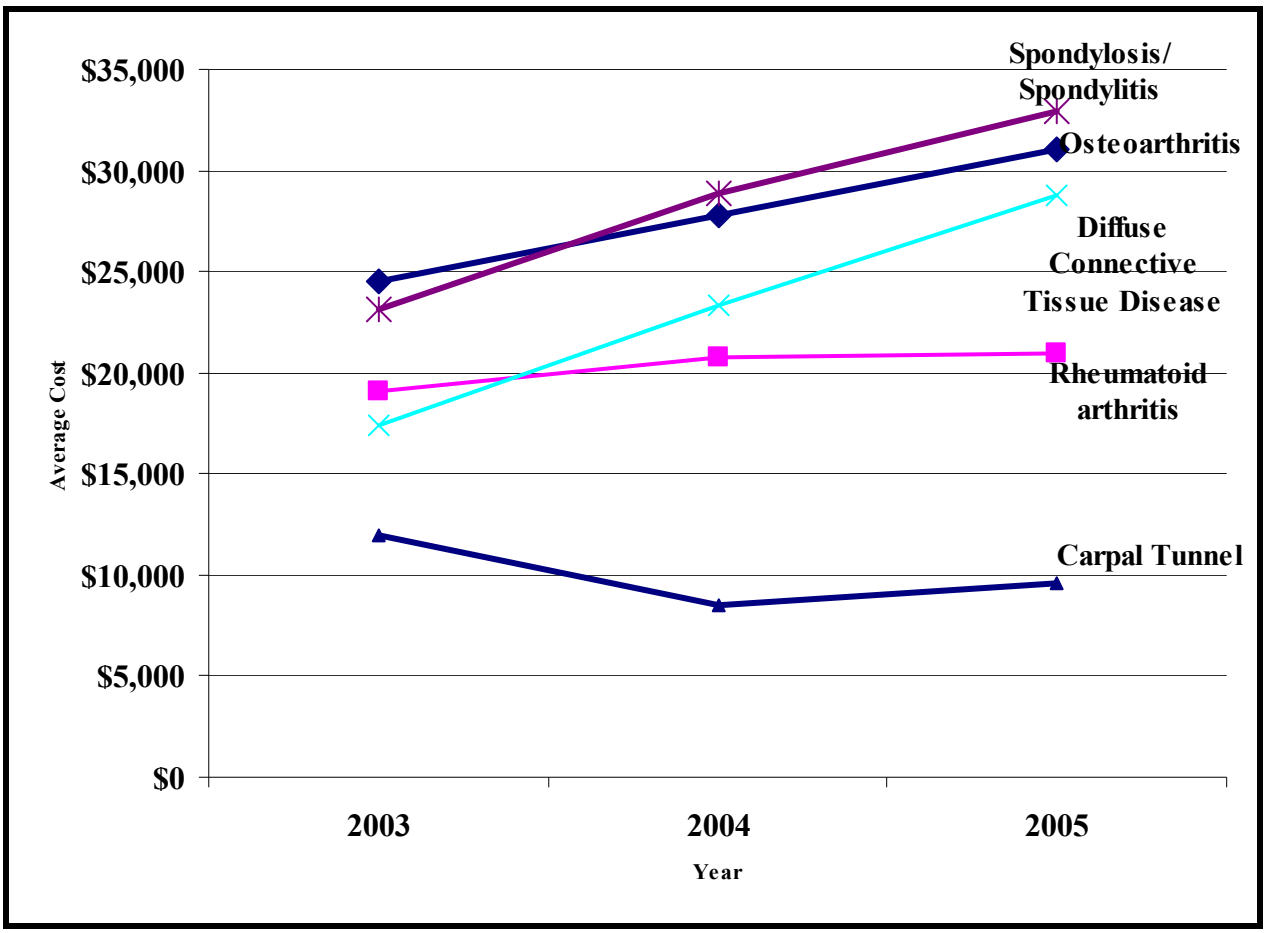
[16] This does not include outpatient charges. In 2005, there were 7,383 procedures performed for carpal tunnel with a total charge of $21,243,800.

[17] Yelin E; Callahan LF. The economic cost and social and psychological impact of musculoskeletal conditions. *Arthritis Rheum*. 1995 Oct; 38(10):1351-62.

Figure 24

Average Hospital Inpatient Charge per Procedure 2003-2005

(Indiana Hospital Discharge Data)



The average hospital charges for some types of arthritis procedures have increased while others have remained constant. Cost increases for osteoarthritis and spondylosis/spondylitis have increased most notably between 2003 and 2005, over $6,400 for osteoarthritis and almost $10,000 for spondylosis/spondylitis.

Table 2 indicates the most common diagnoses and procedures performed by hospitals in 2005. Osteoarthritis accounted for 93.9 percent of the most common arthritis hospital inpatient procedures.

Table 2

Matrix of Most Common Arthritis Diagnosis and Procedures

(Indiana Hospital Discharge Data)

Diagnosis / Procedure	Spondylosis/ spondylitis and allied disorders	Rheumatoid arthritis	Osteoarthritis	Joint pain effusion, other unspecified joint disorders	Soft tissue disorders excluding back	**Total**
Spinal fusion	620	1	2	0	7	**630**
Total hip replacement	3	42	4,075	53	0	**4,173**
Total knee replacement	4	108	11,080	94	0	**11,286**
Arthroplasty and repair of shoulder & elbow	0	22	485	28	32	**567**
Total	**627**	**173**	**15,642**	**175**	**39**	**16,656**

Medical Treatment and Health Care Access

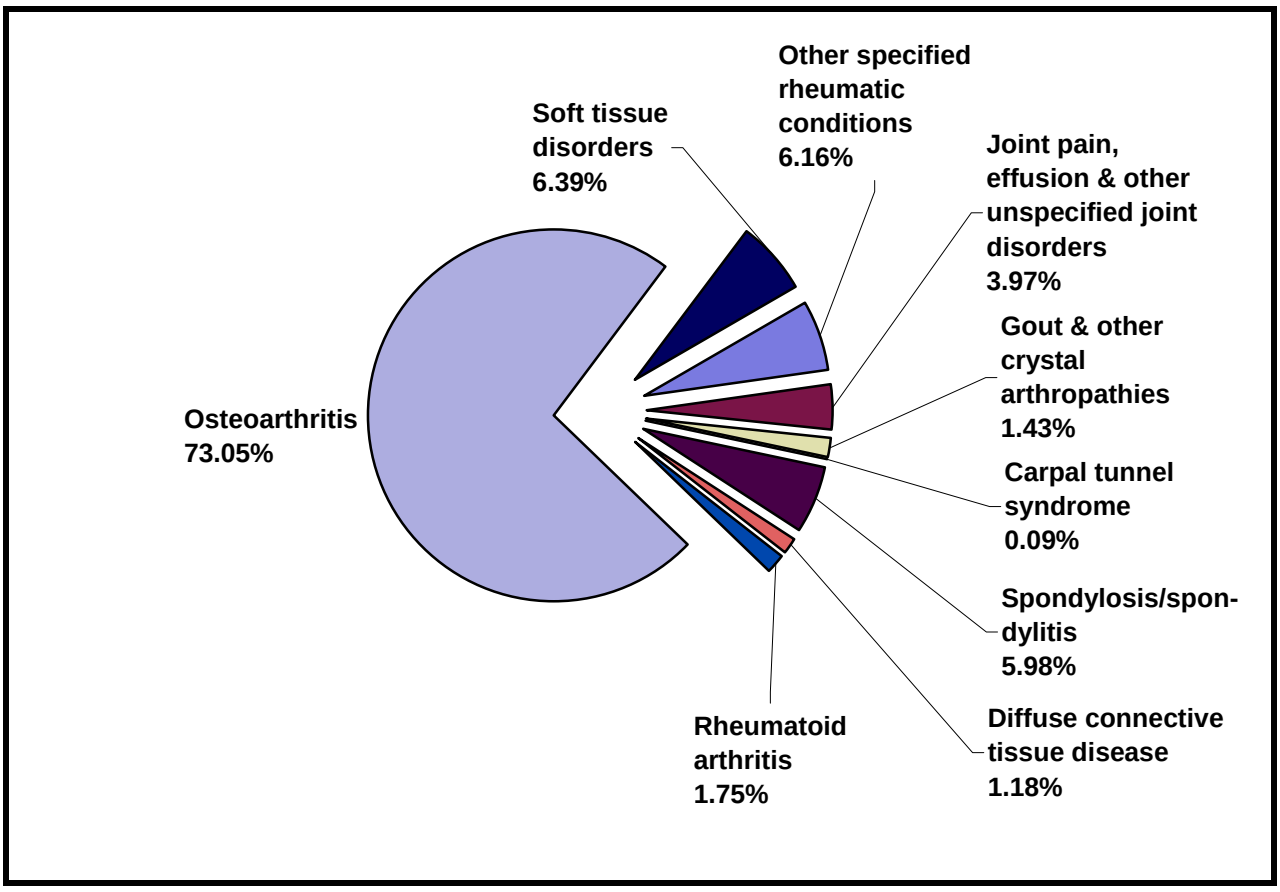
Prompt health care seeking is especially important with inflammatory arthritis since early diagnosis and proper treatment can stop or slow joint damage.

Of BRFSS 2005 respondents with physician-diagnosed arthritis, 88% reported they had seen a doctor or other health professional at least once for joint symptoms, and 88.9 % had health insurance coverage (84.2% of all respondents reported health care coverage).

Almost 75% of hospitalization is for osteoarthritis; most of these were for hip or knee replacement (see figure 25).

Figure 25

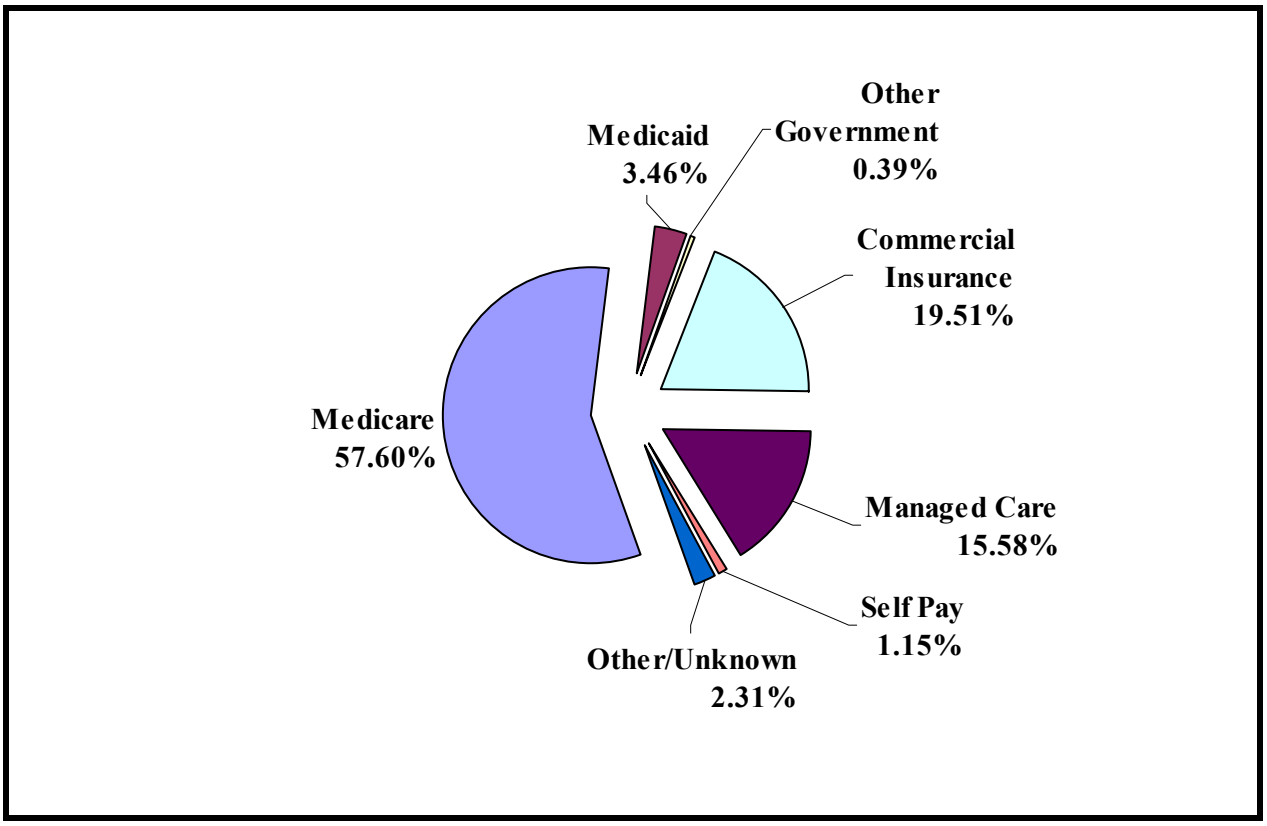
Hospital Discharge by Arthritis Procedure (ISDH Hospital Discharge Data 2005)



More than 60 percent of the hospital charges for arthritis procedures were to Medicare and Medicaid. Thirty-five percent were charged to private insurance (see Figure 26).

Figure 26

Hospital Discharge by Payer (ISDH Hospital Discharge Data, 2005)



Osteoarthritis ranks among the top ten most expensive conditions in the US to Medicare, private insurance, and overall (see Table 3).[18]

Table 3

Osteoarthritis Hospital Ranking by Payer (HCUP, 2005)

Type	Rank	Cost	percent
Medicare	5th	$12 Billon	3.5
Private Insurance	6th	$7 Billon	3.0
Most Expensive Overall	8th	$21 billion	2.8%

[18] Russo, C. A. and Andrews, R. M. The National Hospital Bill: The Most Expensive Conditions, by Payer, 2004. HCUP Statistical Brief #13. September 2006. Agency for Healthcare Research and Quality, Rockville, Md. http://www.hcup-us.ahrq.gov/reports/statbriefs/sb13.pdf.

What We Can Do

Doctors and researchers now know the importance of self-management in enabling people with arthritis to live successfully with their disease. Studies have shown that people with arthritis can maintain or improve joint function and reduce pain by:

Protecting joints. For any motion, engage the strongest, largest muscles and joints possible. For example, lift a sack of groceries from the bottom with both hands and hold it close to the body instead of gripping the handle with one hand. Squat down to pick something off the floor instead of bending over from the waist. Change positions often to keep joints from getting stiff.

Using joints appropriately. Too often people's reaction to aching or stiffness in their joints is to use them less. However, appropriate movement can help. Slow, gentle **range-of-motion exercises** lubricate joints and reduce stiffness. **Strengthening exercises** stabilize and protect joints by strengthening the muscles that surround them. Low-impact **aerobic activities**, like swimming, walking, and bicycling, increase circulation to the joints and promote general health. Individuals should consult with a health care provider for advice appropriate to their medical needs.

Losing excess body weight to reduce stress on weight-bearing joints.

Learning more about "outsmarting" arthritis through self-management. Contact the Arthritis Foundation for more information.

Programs that promote physical activity, appropriate weight maintenance and successful arthritis management are a good investment and should be made more available throughout the state.

Some forms of arthritis may be prevented altogether by:

Practicing sports injury prevention by first warming up, performing strengthening exercises, and using equipment properly. These strategies avoid damage to joints and soft tissue that can increase the risk of osteoarthritis.

Reducing repetitive joint use at the work place.

Losing excess body weight to reduce stress on weight-bearing joints.

Arthritis prevention should be incorporated into sports and recreation education, work place education and well-being programs.

Information Links

The Arthritis Foundation (AF)
http://www.arthritis.org

National Office	Indiana Chapter
(800) 283-7800	(800) 783-2342

Mayo Clinic
http://www.mayoclinic.com
(800) 446-2279

The Centers for Disease Control and Prevention (CDC) Arthritis Homepage
http://www.cdc.gov/arthritis/
CDC Arthritis Program: (770) 488-5464
CDC Office of Public Inquires: (800) 311-3435

National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)
http://www.niams.nih.gov
NIAMS Information Clearinghouse: (877) 226-4267

National Fibromyalgia Association (NFA)
http://www.fmaware.org
(714) 921-0150

Lupus Foundation of America (LFA)
http://www.lupus.org
(800) 558-0121

American College of Rheumatology (ACR)
http://www.rheumatology.org
(404) 633-3777 / (800) 346-4753

American Academy of Orthopaedic Surgeons (AAOS)
http://www.aaos.org
(847) 823-7186 / (800) 346-2267

Indiana Academy of Family Physicians (IAFP)
http://www.in-afp.org
(888) 422-4237

Indiana State Department of Health (ISDH)
http://www.in.gov/isdh/dataandstats/arthritis/index.htm

(317) -234-2561

Appendix A:

Indiana Arthritis Initiative
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ISDH Program Staff:
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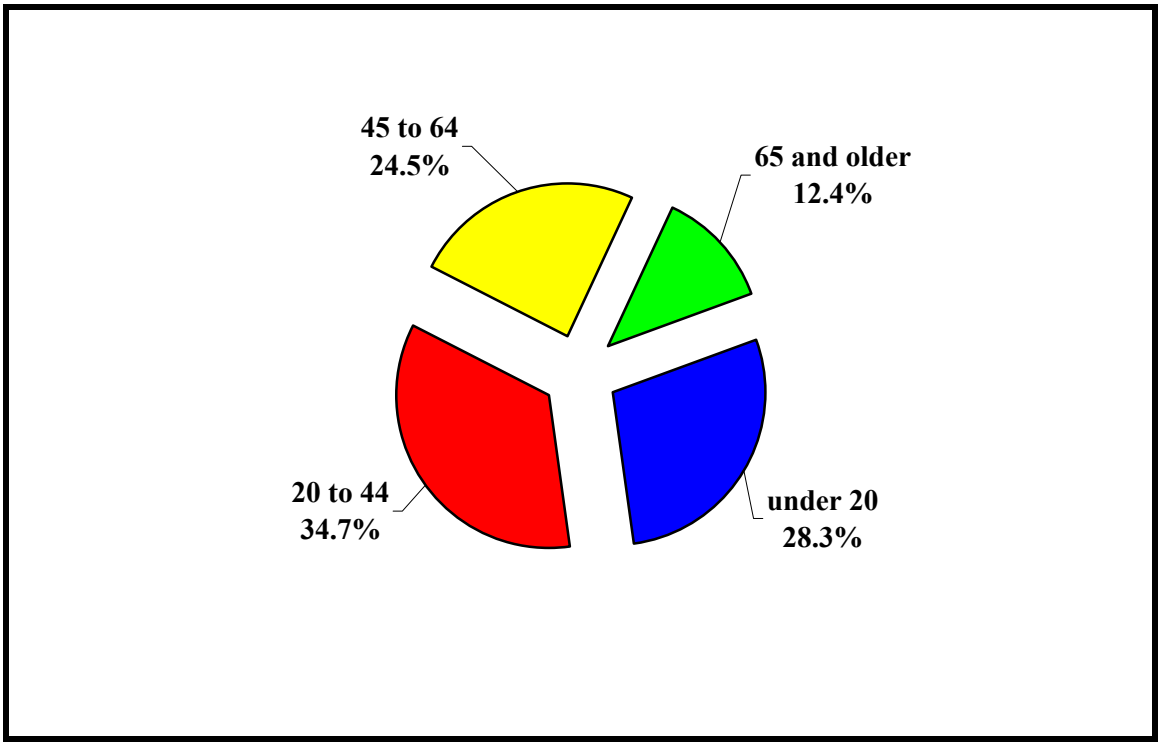
Appendix B:
Indiana Demographics

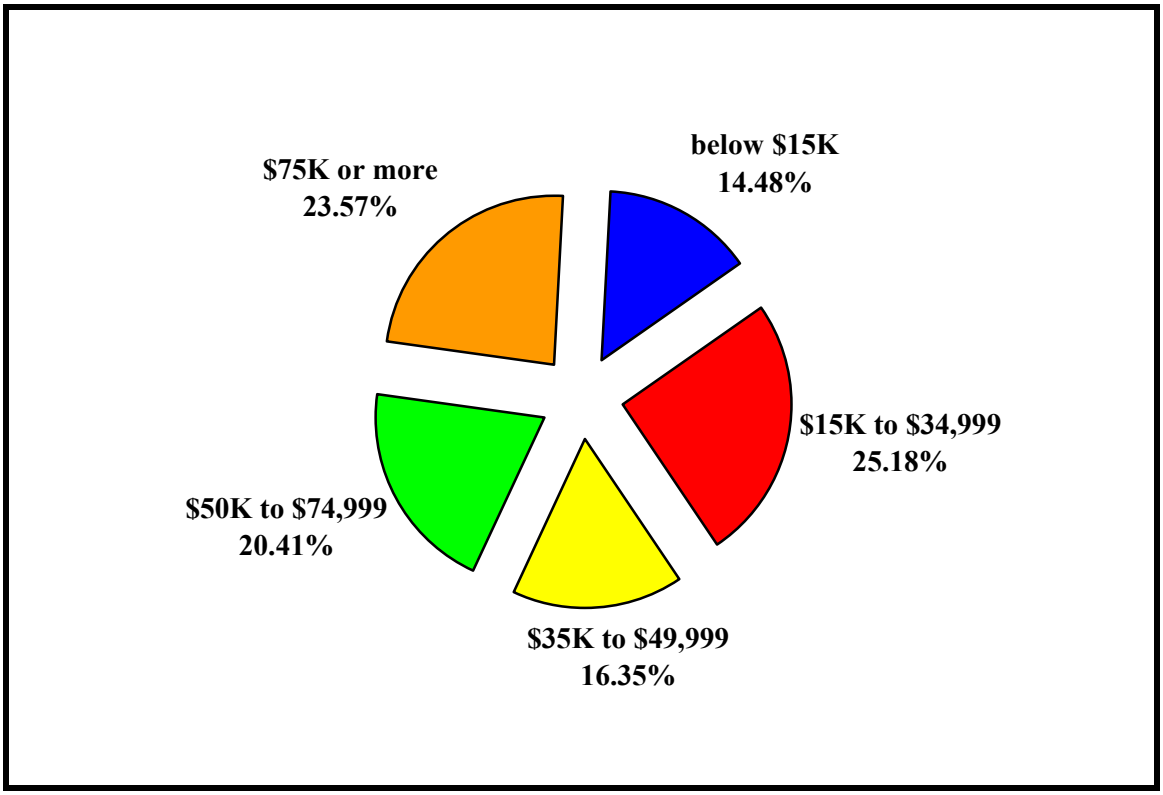
The U.S. Census estimates Indiana's population at 6,271,973 on July 1, 2005, which represents an increase of three percent over the 2000 census. Of these 6 million residents, 28.3 percent were under 20 years of age, 34.7 percent were 20-44 years old, 24.5 percent were 45-64 years old, and 12.4 percent were 65 and older. The median age is 37.3 versus 36.5 in 2000. [19]

Indiana's Population by Age Category (US Census 2005)



In 2005, 12.2 percent of Hoosiers were living below poverty level, compared to 9.5% in 2000. Household income levels across the state were 14.48 percent below $15,000, 25.18 percent between $15,000 and $34,999, 16.35 percent between $35,000 and $49,999, 20.41 percent between $50,000 and $74,999, and 23.57 percent were $75,000 or higher.[20]

Indiana's Household Income by Category



Slightly over one fifth of Hoosiers (21.1%) live in Indiana's five largest cities: Evansville (115,918), Ft. Wayne (223,341), Gary (98,715), Indianapolis (784,118), and South Bend (105,262). Over 27 percent (27.42) of the population lived in Marion County and surrounding "donut" counties in 2005 compared to 26.43 percent in 2000.[21]

The state is becoming more racially diverse, with residents' self-reported race listed as 86.1 percent white, 8.6 percent African American, 1.2 percent Asian, 1.5 percent more than one race, and 0.2 percent American Indian/Alaska Native. Slightly more than four percent (4.6) of the state's residents identified themselves as Hispanic, up from 3.5 percent in 2000, a 32 percent increase. Counties with the highest populations of Hispanics include Lake (13.5 percent), Elkhart (11.9 percent), Clinton (10.6 percent), Cass (9.4 percent), and Noble (8.9 percent).[22]

Half of the state's 92 counties have been partially or entirely designated by the federal government as Medically Underserved Areas (MUA) or Medically Underserved Populations (MUP). The MUA and MUP designations indicate that a geographic area (usually a county or collection of townships or census tracts) or a specific population needs additional primary health care services. Factors such as the availability of health professional resources within a 30-minute travel time, the availability of primary care resources in contiguous areas, the extent of markers of high need such as high mortality rates or high poverty rates, and the percent of population over age 65 are considered in the designation process. In 15 Indiana counties, the entire county is designated as underserved, while in 32 other counties a collection of townships or census tracts are so designated.[23]

The Indiana State Department of Health has made serving the underserved a top priority. A network of Safety Net Clinics was established statewide to provide primary and preventive health care to Indiana's underserved populations. The network consists of 59 state-funded community health clinics operated by 44 organizations.

There are 94 local health departments serving Indiana's 92 counties. These local departments, which are funded by state, local, and federal funds, provide a variety of services, including some primary care services. However, most of their effort is directed towards promoting health and reducing the incidence of disease.

[19] Table 2: Annual Estimates of the Population by Sex and Age for Indiana: April 1, 2000 to July 1, 2005 (SC-EST2005-02-18).

[20] Income, Earnings, and Poverty Data From the 2005 American Community Survey (ACS-02), Table 6.

[21] U.S. Census Bureau, 2005 American Community Survey, Selected Economic Characteristics As of February 2006.

[22] U.S Census Bureau, 2005 American Community Survey, Selected Economic Characteristics As of February 2006.

[23] MUA/MUP data from: http://www.in.gov/isdh/publications/llo/shortages/pdf/MUA_details_table5-06.pdf.

Appendix C:
Body Mass Index

A Body Mass Index (BMI) score of 25 to 29.9 is classified as overweight and a BMI of 30 or higher is classified as obese.

Body Mass Index Chart[24]

	Normal						Overweight					Obese									
BMI	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**
Height (inches)																Body Weight (pounds)					
58	91	96	100	105	110	115	119	124	129	134	138	143	148	153	158	162	167	172	177	181	186
59	94	99	104	109	114	119	124	128	133	138	143	148	153	158	163	168	173	178	183	188	193
60	97	102	107	112	118	123	128	133	138	143	148	153	158	163	168	174	179	184	189	194	199
61	100	106	111	116	122	127	132	137	143	148	153	158	164	169	174	180	185	190	195	201	206
62	104	109	115	120	126	131	136	142	147	153	158	164	169	175	180	186	191	196	202	207	213
63	107	113	118	124	130	135	141	146	152	158	163	169	175	180	186	191	197	203	208	214	220
64	110	116	122	128	134	140	145	151	157	163	169	174	180	186	192	197	204	209	215	221	227
65	114	120	126	132	138	144	150	156	162	168	174	180	186	192	198	204	210	216	222	228	234
66	118	124	130	136	142	148	155	161	167	173	179	186	192	198	204	210	216	223	229	235	241
67	121	127	134	140	146	153	159	166	172	178	185	191	198	204	211	217	223	230	236	242	249
68	125	131	138	144	151	158	164	171	177	184	190	197	203	210	216	223	230	236	243	249	256
69	128	135	142	149	155	162	169	176	182	189	196	203	209	216	223	230	236	243	250	257	263
70	132	139	146	153	160	167	174	181	188	195	202	209	216	222	229	236	243	250	257	264	271
71	136	143	150	157	165	172	179	186	193	200	208	215	222	229	236	243	250	257	265	272	279
72	140	147	154	162	169	177	184	191	199	206	213	221	228	235	242	250	258	265	272	279	287
73	144	151	159	166	174	182	189	197	204	212	219	227	235	242	250	257	265	272	280	288	295
74	148	155	163	171	179	186	194	202	210	218	225	233	241	249	256	264	272	280	287	295	303
75	152	160	168	176	184	192	200	208	216	224	232	240	248	256	264	272	279	287	295	303	311
76	156	164	172	180	189	197	205	213	221	230	238	246	254	263	271	279	287	295	304	312	320

Calculating BMI is simple, quick, and inexpensive--but it does have limitations. One problem with using BMI as a measurement tool is that very muscular people may fall into the "overweight" category when they are actually healthy and fit. Another problem with using BMI is that people who have lost muscle mass, such as the elderly, may be in the "healthy weight" category--according to their BMI--when they actually have reduced nutritional reserves. BMI, therefore, is useful as a general guideline to monitor trends in the population, but by itself is not diagnostic of an individual patient's health status. Further evaluation of a patient should be performed to determine his or her weight status and associated health risks.

(BMI source: http://win.niddk.nih.gov/statistics/index.htm)

24: Source: Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults, National Institutes of Health, National Heart, Lung, and Blood Institute, June 1998.